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FIELD MUSEUM OF NATURAL HISTORY.

PUBLICATION 165.

REPORT SERIES.

VOL. IV, No. 3.

ANNUAL REPORT OF THE DIRECTOR

TO THE

BOARD OF TRUSTEES

FOR THE YEAR 1912.



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January, 1913.

Natural History Library

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WATSON F. BLAIR.

Second Vice-President and Chairman of the Finance Committee.

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ANNUAL REPORT OF THE DIRECTOR.

1912.

To the Trustees of Field Museum of Natural History:

I have the honor to present a report of the operations of the Museum for the year ending December 31, 1912.

The progress of installation during the year, especially in Asiatic and Philippine Ethnology and in Zoology — the latter including a number of large bird and animal groups — has so encroached upon the rooms reserved for storage purposes and so congested certain halls, that it has been found necessary to reopen the West Annex, which had been vacated in anticipation of the commencement of the construction of the new Museum building, and by the time this report reaches the Board the four scientific departments of the Museum will be provided, for the present at least, with ample storage and preparators' work rooms. The Joseph N. Field Expedition to the South Pacific Islands has concluded its work under Mr. Lewis, and upon his return, soon expected, the vast amount of material received by the Museum as a result of his survey and collections will be catalogued, labelled and prepared for installation. It is estimated that this material will fill four or five halls. The Curator of the Department of Anthropology, who has been absent on a protracted leave of absence, returned to his duties in June and the inspiration given to the work of that Department by the personal presence of its Curator is quite apparent in the references elsewhere made to the progress of that Department. Mr. Fay Cooper Cole, who conducted so successful an expedition to the Philippine Islands, has been appointed Assistant Curator of Physical Anthropology and Malayan Ethnology. Mr. S. Chapman Simms has, upon the approval of the Curators of the scientific departments, been appointed by the Director, Curator of "The N. W. Harris Public School Extension of Field Museum," and the work of preparation — in selecting type cases, character of unit collections, etc.—is well advanced. The suite of the Curator of Harris Extension has been established in the southwest halls of the West Annex. Assistant Curator Owen is completing his work among the Hopi in Arizona, under the Stanley McCormick Fund. Mr. Huron H. Smith, who has been in the field collecting North American Forestry for the past three years, having completed his work, has returned and is now in charge of the preparation and installation of

this large collection, which will naturally involve a great deal of time and labor and eventually present an unexampled exhibit in this material. Assistant Curator Greenman of the Department of Botany has resigned to accept a position with the Missouri Botanical Garden of St. Louis, leaving this Institution with the best wishes of his colleagues. Assistant Curator Riggs has made marked progress in working up the splendid result of his last paleontological expedition in the Uintah desert in northeastern Utah, and there is now on exhibition probably the most complete collection of skulls from this formation in the world. The purchase of the meteorite collection of the late Henry A. Ward, which for several years has been on exhibition at the American Museum of Natural History, has established the Museum in the first rank in this interesting division. The material is being installed in the cases accompanying the collection, but will not be placed on exhibition in the present building. The most important field expedition this year was that under Mr. Osgood, Assistant Curator of Mammalogy and Ornithology, to South America, the results of which expedition are more specially set forth under the proper heading. The work is being conducted in charge of two assistants, although Mr. Osgood has returned to the Museum. Assistant Curator Meek has completed his second survey in the Panama Canal Zone in connection with Smithsonian Institution, with excellent results and abundant material for the study collections and for publication. Mr. Carl E. Akeley has commenced work upon large African mammal groups in performance of his contract entered into with the Museum a year or more ago. His first group will be the Cape Buffalo, consisting of five individuals. Under the patronage of Mr. Stanley Field and Mr. Albert A. Sprague II four most striking, brilliant four-section bird groups have been acquired. In response to the demand from the Curators for exhibition cases, the Trustees transferred the sum of \$105,000 to a "New Exhibition Cases Fund," and it is believed that this provision will give to the Museum all the cases it will be considered advisable to install before the occupation of the new building. There is not sufficient exhibition space remaining in the entire Museum to accommodate this number of new cases, approximating 600, and, therefore, as the cases are installed, instead of being introduced in their proper halls or suites they will be stored in the West Annex and not be accessible by the public until placed in the proper position in the new building. Among the publications of the Museum, listed hereafter, that on "Jade; A Study in Chinese Archaeology and Religion," by Dr. Laufer, has created a demand from the public exceeding that of any publication issued by the Institution. It has been widely reviewed and highly complimented. Mr. Richard T. Crane, Jr., has resigned from



HABITAT GROUP. SONORA GRIZZLY BEAR (*Ursus horribilis sonoriensis*).

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the Board of Trustees on account of the pressure of private business, and eleven new Life Members have been elected during the year. A number of important donations have been made in the collections of the Museum, including two very interesting and valuable Chinese paintings, presented by the Tuesday Art and Travel Club of Chicago. The paintings are of scroll work on silk, measuring twenty-five and thirty feet in length. Every evidence of progressive activity in scientific and popular lines will be found upon consulting the review of the work following:

MAINTENANCE.—The Budget authorized by the Board of Trustees provided the sum of \$179,030 for the maintenance of the Museum for the year ending December 31, 1912. The amount expended was \$167,612 which leaves a margin of \$11,418. In addition to the cost of maintenance \$70,400 was expended by authority of the Board for collections, expeditions and so forth, bringing the total expenditure for the year to \$238,000.

LECTURE COURSE.—The attendance at the two courses given was highly gratifying, the seating capacity of Fullerton Hall being inadequate to accommodate those desiring to attend. Following is a list of the lectures given during the year:

Thirty-sixth Free Illustrated Lecture Course:

March 2. "Elephant Hunting in Africa."

Mr. C. E. Akeley, New York.

March 9.—"A Monkey on Safari."

Mr. C. E. Akeley, New York.

March 16.—"Journeys in Mexico."

Prof. O. C. Farrington, Curator of Geology, Field Museum.

March 23.—"The Life of the Soil."

Prof. George T. Moore, Missouri Botanical Garden.

March 30.—"The R. F. Cummings Philippine Expedition: The Philippines Before and After American Occupation."

Mr. Fay Cooper Cole, Ethnologist, Field Museum.

April 6.—"Conservation of Wild Life."

Mr. Richard E. Follett, New York.

April 13.—"The Panama Canal and its Makers."

Mr. Frederick I. Monsen, New York.

April 20.—"Egypt and the Nile."

Mr. Arthur Stanley Riggs, New York.

April 27.—"Southeastern Italy and Sicily To-day."

Mr. Arthur Stanley Riggs, New York.

Thirty-seventh Free Illustrated Lecture Course:

- Oct. 5.—“A Botanist in the Orient—I.”
Dr. Charles F. Millspaugh, Curator, Department of Botany, Field Museum.
- Oct. 12.—“A Botanist in the Orient—II.”
Dr. Charles F. Millspaugh, Curator, Department of Botany, Field Museum.
- Oct. 19.—“In Costa Rica and Panama.”
Dr. S. E. Meek, Assistant Curator, Department of Zoology, Field Museum.
- Oct. 26.—“A Naturalist's Reconnaissance in Colombia.”
Prof. Frank M. Chapman, American Museum of Natural History.
- Nov. 2.—“The R. F. Cummings Philippine Expedition: The Pigmies of the Philippine Islands.”
Mr. Fay Cooper Cole, Ethnologist, Field Museum.
- Nov. 9.—“Plant Breeding.”
Prof. J. M. Coulter, University of Chicago.
- Nov. 16.—“The Geology of China and its Influence upon the Chinese People.”
Prof. Eliot Blackwelder, University of Wisconsin.
- Nov. 23.—“The Mrs. T. B. Blackstone Tibetan and Chinese Expedition: Chinese Art.”
Dr. Berthold Laufer, Associate Curator of Asiatic Ethnology, Field Museum.
- Nov. 30.—“Prof. Whitman's Unpublished Researches on Heredity and Evolution.”
Dr. Oscar Riddle, Research Assistant, Carnegie Institution.

PUBLICATIONS.—During the year thirteen publications of the established series were issued and some of these exceed in importance any hitherto published by the Institution. Following is a list of the publications issued and their distribution:

- Pub. 152.—Anthropological Series, Vol. VII, No. 4. Antiquities from Boscoreale in Field Museum of Natural History. By Herbert F. De Cou. 68 pages, 1 map, 64 halftones, 2 zinc etchings. Edition 1,500.
- Pub. 153.—Zoological Series, Vol. XI. The Mammals of Illinois and Wisconsin. By Charles B. Cory. 505 pages, numerous maps, halftones and zinc etchings. Edition 2,500.

- Pub. 154.—Anthropological Series, Vol. X. Jade, A Study in Chinese Archaeology and Religion. By Berthold Laufer. 370 pages, 68 plates, 6 of which are colored, and 204 text figures. Edition 1,500.
- Pub. 155.—Zoological Series, Vol. X, No. 5. Mammals from Western Venezuela and Eastern Colombia. By Wilfred H. Osgood. 33 pages, 2 halftones. Edition 1,500.
- Pub. 156.—Anthropological Series, Vol. XI, No. 1. The Oraibi Marau Ceremony. By H. R. Voth. 88 pages, 33 illustrations. Edition 1,500.
- Pub. 157.—Anthropological Series, Vol. XI, No. 2. Brief Miscellaneous Hopi Papers. By H. R. Voth. 61 pages, 24 illustrations. Edition 1,500.
- Pub. 158.—Zoological Series, Vol. X, No. 6. Descriptions of New Fishes from Panama. By S. E. Meek and S. F. Hildebrand. 2 pages. Edition 1,500.
- Pub. 159.—Geological Series, Vol. IV, No. 2. New or Little Known Titanotheres from the Lower Uintah Formations. By E. S. Riggs. 25 pages, 23 halftones, 2 zinc etchings. Edition 1,500.
- Pub. 160.—Report Series, Vol. IV, No. 2. Annual Report of the Director to the Board of Trustees, for the year 1911. 82 pages, 14 halftones. Edition 2,500.
- Pub. 161.—Zoological Series, Vol. VII, No. 13. Index to Volume VII, Numbers 1 to 12.
- Pub. 162.—Anthropological Series, Vol. XII, No. 1. Chinese Pottery in the Philippines. By Fay Cooper Cole with postscript by Berthold Laufer. 47 pages, 22 plates. Edition 1,500.
- Pub. 163.—Zoological Series, Vol. X, No. 7. New Species of Fishes from Costa Rica. By S. E. Meek. 7 pages. Edition 1,500.
- Pub. 164.—Botanical Series, Vol. II, No. 8. I. New Species of Cuban Senecioneae. II. Diagnoses of New Species and Notes on other Spermatophytes, chiefly from Mexico and Central America. By Jesse More Greenman. 28 pages. Edition 1,500.

NAMES ON MAILING LIST

Domestic	602
Foreign	690
Total	1,292

DISTRIBUTION OF FOREIGN EXCHANGES

Argentine Republic	12	India	14
Australia	30	Italy	36
Austria-Hungary	32	Jamaica	2
Belgium	17	Japan	9
Borneo	1	Java	4
Brazil	10	Liberia	1
British East Africa	1	Malta	1
British Guiana	2	Mexico	20
Bulgaria	1	Natal	3
Canada	28	Netherlands	21
Cape Colony	6	New Zealand	7
Ceylon	3	Peru	2
Chile	2	Norway	8
China	2	Portugal	5
Colombia	2	Rhodesia	2
Costa Rica	5	Roumania	1
Denmark	9	Russia	18
East Africa	1	Salvador	1
Ecuador	1	Sicily	1
Egypt	2	Spain	6
France	57	Straits Settlements	1
Fiji Islands	1	Sweden	16
Finland	1	Switzerland	21
Germany	137	Tasmania	2
Great Britain	114	Transvaal	3
Greece	2	Uruguay	1
Guatemala	1	West Indies	4

DISTRIBUTION OF PUBLICATIONS (FOREIGN)

Anthropological	306
Botanical	365
Entomological	160
Geological	358
Icthyological	164
Ornithological	204
Report	690
Zoological	294

DISTRIBUTION OF DOMESTIC EXCHANGES

Alabama	2	Iowa	14
Arkansas	1	Kansas	7
California	28	Kentucky	2
Colorado	13	Louisiana	4
Connecticut	21	Maine	7
Delaware	2	Maryland	9
District of Columbia	66	Massachusetts	66
Florida	2	Michigan	12
Idaho	1	Minnesota	9
Illinois	61	Mississippi	3
Indiana	15	Missouri	13

Montana	2	South Dakota	2
Nebraska	7	Tennessee	2
Nevada	3	Texas	2
New Hampshire	4	Utah	1
New Jersey	14	Vermont	4
New Mexico	2	Virginia	4
New York	80	Washington	6
North Carolina	6	West Virginia	6
North Dakota	2	Wisconsin	16
Ohio	19	Wyoming	2
Oklahoma	2	Cuba	3
Oregon	1	Hawaii	5
Pennsylvania	39	Philippine Islands	2
Rhode Island	5	Porto Rico	1
South Carolina	2		

DISTRIBUTION OF PUBLICATIONS (DOMESTIC)

Anthropological	233
Botanical	303
Geological	314
Historical	165
Icthyological	156
Ornithological	160
Report	602
Zoological	265

THE LIBRARY.—The additions received during the year exclusive of duplicates were 2,263, increasing the number of books and pamphlets in the library to 58,133. Of this number 1,900 were received by gift or exchange and 363 by purchase, distributed as follows:

General Library	39,611
Department of Anthropology	2,807
Department of Botany	6,167
Department of Geology	7,114
Department of Zoology	2,434
Total	58,133

The regular routine work of recording the books requisitioned, ordered, received, catalogued, bound and shelved has been continued, always with an aim to have the system as satisfactory as possible to give efficient results. The accessions of the year have been of unusual value and importance. Publications were received from 727 individuals and institutions, and 27 new exchanges were effected. The fund available for the purchase of books was carefully expended upon works selected by the staff. Among the more important purchases were the New (11th) Edition of the Encyclopaedia Britannica, the last edition of the Century Dictionary, a beautifully illustrated

copy of the "Catalogue of the Ancient Imperial Treasury called Shôshôin," Fenollosa's Epochs of Chinese and Japanese Art, Smith's History of Fine Arts in India and Ceylon, Havell's Indian Sculpture and Painting, Lindt's Picturesque New Guinea, Bentham's Botany of the Voyage of H. M. S. Sulphur, 1836-1842, Bentham and Mueller's Flora of Australia, Bradley's Bibliography, Hallier's Flora von Deutschland, Richards' Ore Dressing, Osborne's Engraved Gems, Alpheraky's Geese of Europe and Asia, and Scammon's Mammals of the West Coast of Africa. Through the courtesy of Mr. George Manierre the Museum received a set of Paxton's Magazine of Botany, 16 volumes. This set is becoming increasingly rare and the library was fortunate in receiving so valuable a gift. As in former years the library is again indebted to Mr. Edward E. Ayer for gifts of books, also to Mr. Henry H. Getty of Paris, France; Mr. Ezra Brainerd, Middlebury, Vermont; Mr. William Barnes, Decatur, Illinois; Professor Walter Barrows, Lansing, Michigan; Mrs. M. W. Lyman, Chicago; and Dr. Berthold Laufer; and to the following institutions: Bureau of Aboriginal Affairs, and Bureau of Production and Industry, Government of Formosa; Indian Museum, Calcutta; Indiana State Board of Forestry; Maryland State Board of Forestry; Museo Nacional de Arqueologia, Historia y Etnologia, Mexico; North Carolina Geological and Economic Survey, Raleigh; Passau Naturhistorischer Verein, Germany; Pennsylvania Topographic and Geologic Survey Commission; and Tokyo Botanical Society. The current periodical list is being gradually increased with a view to eventually including the standard scientific periodicals pertaining to the work of the Museum. The number of books, serials, periodicals and pamphlets bound during the year was 1,012. A number of pamphlets by various authors were bound in cloth to more properly protect them. The return of the books from the bindery again overtaxed the limited shelf space in the stack room and some of the least used books were shelved in temporary cases. A desired improvement was made in the library of the Department of Anthropology, the shelving having been enclosed by glass doors that will assist greatly in keeping the books free from dust. There have been written and added to the catalogues 18,146 cards. Two sections of the recently adopted metal card cabinet were purchased. Monthly installments of the John Crerar Catalogue cards were received and filed.

DEPARTMENTAL CATALOGUING, INVENTORYING AND LABELING. — Nearly 6,000 catalogue cards have been entered in the inventory books of the Department of Anthropology during the year, the large majority of these pertaining to the Blackstone Chinese and Japanese collections. About 800 cards have been written from the Philippine collections,



CHINESE STONE SCULPTURE OF T'ANG PERIOD (742 A. D.) OF TORTOISE CARRYING
INSCRIBED TABLET.

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covering the Ayer, Darrah, Jenks and Porter collections and nearly a thousand labels prepared for the Tlingit collections now installed in the East Alcoves of the South Court. The iron agricultural implements from Boscoreale installed in the North Court have been labeled and about 800 specimen labels have been prepared for the Philippine material, besides many large descriptive labels especially prepared for groups and for special industries. Many revised labels have been placed in the McCormick Hopi collections and the old buff labels in the Egyptian Hall have been replaced by black and white labels. Rubbings of the inscriptions on the great stone sarcophagus from Egypt have been made and submitted to Dr. Breasted of the University of Chicago, to be used in preparing a comprehensive label. There have been prepared for the Chinese collections 1,100 labels. In these Dr. Laufer has aimed, so far as possible, to avoid technical phraseology and erudition, to make the labels plain and intelligible to the layman. Thus, in explaining Chinese paintings emphasis has been laid on the appreciation of the spirit and inward qualities of Chinese art, in order to lead the public to a correct understanding and a sound judgment rather than to actual knowledge of a subject so foreign to the majority of people. All the current accessions in the Department of Botany for the past year, amounting to 13,517 specimens, have been catalogued and 11,078 specimens entered from the large collections undergoing organization. These two items make a total of 24,595 entries made in the catalogue volumes during the year. A new and additional steel card index case has been added to the laboratory equipment, comprising 91 drawers. This will give a capacity for expansion of the "Special Index" for about three years. All specimens added to the exhibition cases in the Department have been labeled. The material received by the Department of Geology during the year was fully inventoried and catalogued with the exception of the Ward-Coonley meteorites, cataloguing of which is still in progress. The cataloguing accomplished was chiefly of collections of fossils and minerals and the fossils collected in Iowa by the Assistant Curator of Invertebrate Paleontology. Careful identification of species was carried on in connection with this work. While this requires the expenditure of much time, the greater completeness of the catalogue thus obtained is believed desirable. The series of petroleums received during the year numbering 228 specimens was also fully catalogued. To the card catalogue of vertebrate fossils 32 cards giving full description of specimens were added. The Department library was increased by the addition of 646 books, pamphlets and maps, and 123 cards were added to the catalogue of the library, making a total of 2,614 cards. A considerable amount of labeling of

a permanent character has been accomplished, the total number of labels prepared and in part printed and distributed being about 3,000. A number of single series were fully labeled and the labeling according to standard practice of all specimens at present exhibited in the Department is rapidly approaching completion. For the most part new labels replace those of mixed character heretofore used. Many of these were hand written, and the rest were of the old buff cardboard type, which were among the first products of the Museum printing shop. Many of these were made for a type of specimen mount now abandoned and in shape and size were unadapted to the present installation. In reprinting these labels in aluminum ink on black cards, it was often found desirable to increase the size of the type. This called for a revision of the matter on the labels so that what was relatively unimportant as well as any matter appearing on the accompanying group labels was omitted. The greater part of the new labeling accomplished related to the ore collections occupying Hall 34. Except for the marbles and building stones, which were done previously, the labels for the whole of Hall 34 were revised during the year, and those for the gold, silver, lead and platinum collections installed. The total number of labels thus prepared was about 2,000. Besides the preparation of labels for the individual specimens attention was paid to group labels in this series and enough of them were provided to break up the too uniform appearance of lines of specimens. Besides the group labels of the type formerly employed, a number of mining district labels were prepared. These state briefly where the district is located and give a few of the more salient features of its ore deposits. In preparing these labels every effort was made to keep the labels as brief as possible, to use as large type in the body of the label as possible, and to employ language as non-technical as the subject would allow. An extensive series of labels was prepared for the petroleum collection and the labeling of this collection was practically completed. Nearly 500 labels were prepared for this collection, about 30 of them being descriptive and the remainder giving full details. The Chalmers collection of crystals, occupying Alcove 105, was provided with a full series of new labels, about 200 labels being prepared for the purpose. About 300 labels were prepared and distributed among the larger rock specimens to replace those of a miscellaneous character which had hitherto been used. Complete individual labels to the number of 45 and one large descriptive label were provided for the case of fossil Eocene mammals, Hall 59. A series of individual and descriptive labels numbering about 30 was provided for the blast furnace models. A number of defective or writ-

ten labels in the clay and soil collections were replaced by correct ones. Considerable attention was paid during the year to devising a new form of case label and the results at present attained seem satisfactory. The difficulty has been to find a stock for printing which would correspond with the case in color and not change under the action of light. After numerous experiments the end seems to be attained by employing a mahogany veneer mounted upon a heavy board. The veneer is finished to correspond in color and gloss with the case and the text of the label is then printed upon it. About 40 of these labels have been prepared and installed. Their appearance is much better than that of the cardboard hitherto employed and it is believed they will not suffer from fading. In the Department of Zoology the usual routine of cataloguing has been maintained. Altogether 902 entries have been made; 861 in Ornithology and 41 in Mammalogy. The Division of Ichthyology and Herpetology has been without an assistant for more than two years and for this reason cataloguing in this Division has advanced slowly. In addition to his regular duties the Assistant Curator of Entomology has devoted considerable time to relabeling the systematic bird collection during the absence of Assistant Curator Osgood, who was absent in the field. Considerable progress was, however, made in improving the local collection of insects of which 800 specimens were pinned, labeled and distributed with the result that the Illinois Orthoptera, or grasshoppers, roaches, etc., have now been identified and systematically arranged so that these insects will henceforth be accessible for study or other purposes. The collection of Systematic Osteology and Craniology has been relabeled throughout, the common name of the species being placed in bold type at the top of the label.

The work in this important direction is shown in detail as follows:

	No. of Record Books.	Total No. of Entries to Dec. 31, 1912.	Entries During 1912.	Total No. of Cards Written.
Department of Anthropology	34	123,530	6,000	124,281
Department of Botany	56	354,434	24,595	40,225
Department of Geology	21	124,016	3,294	7,579
Department of Zoölogy	40	83,930	929	29,962
The Library	14	94,811	7,394	142,122
Section of Photography	8	101,554	8,984	.....

ACCESSIONS.—As usual, the majority of accessions acquired by the Department of Anthropology have been through gift. Mr. Homer Sargent continued to show his interest in the Museum by presenting additional valuable material illustrating the technology of certain Salish tribes of the Fraser River region. From Mr. Charles A. Baker, as administrator for the Estate of the late R. H. Baker, the Museum

obtained valuable specimens from the South Pacific Islands, with many photographs and 66 Japanese and Ainu specimens. These have all been catalogued, labeled and installed in Hall 56. The Ainu material was especially welcome as it supplements the present collection. The Japanese specimens enables the Museum, with the addition of the material already on hand, to make what may be said to be the beginning of a Japanese section. Even thus, it must be admitted that Japan is very poorly and inadequately represented in this Department, and immediate attention should be given to its development. One of the most significant acquisitions of the year was by gift from the Tuesday Art and Travel Club of Chicago, who presented to the Museum two magnificent ancient rolls painted on silk. One, over 27 feet long, represents one of China's famous paintings, showing the life, traffic, and culture of a mediaeval town at the end of the Twelfth Century; the other picture, 21 feet long, represents one hundred boys at play and imparts a vivid description of China's games and customs, painted in a graceful style during the Ming period. Both paintings are exhibited in specially prepared cases in Hall 45, being accompanied by detailed explanatory labels. Mr. John Muir, a missionary at Batang on the Tibetan and Chinese frontier, returned to Chicago with a collection of 165 Tibetan specimens, including a number of interesting paintings, books, costumes, weapons, ornaments, and a model of a Tibetan house, all of which form valuable additions to the Tibetan collections obtained by Dr. Laufer. A fine Chinese tapestry, nearly 20 feet long, representing The Eighteen Arhat (disciples of Buddha) in the act of crossing the sea, in the style of the famous painter Li Lungmien, has been acquired by purchase. This notable specimen came to this country at least a century ago through a Chinese family settling in California. A collection of 9 pieces of Han pottery has been purchased from Dr. Buckens, a Belgian physician in the service of the Peking-Hankow Railway, who had exceptional facilities for procuring antiquities excavated during the construction of railroads. The mortuary stoves and towers in this collection well supplement the manifold types on hand. There is, besides, a fine piece of Tchang pottery in this lot, an amphora-shaped jar with double dragon handles, made in imitation of Persian ware of the Sassanian epoch. A curious album, with beautifully lacquered covers painted in gold with miniatures, is another valuable addition; it contains 25 specimens of popular art, depicting the life, customs, and industries of Southern China in the beginning of the Nineteenth Century — an interesting ethnological record of the now vanishing culture of

the Manchu period. Through the continued interest of Trustee Ayer the South Italian collections have been enriched by four magnificent earthenware wine jars from Boscoreale, together with a bronze vase from the same villa and a collection of vases, jewelry and a sarcophagus from Etruria. Mr. Ayer, during the year, has also added many important examples to the extensive collection of North American ethnology previously presented by him. A certain portion of this accession has been set aside for use in the N. W. Harris Public School Extension of Field Museum project. A very interesting and unique crown from the Marquesas Islands has been acquired by purchase. From Melbourne University has been acquired by exchange an exceedingly valuable collection of ethnological material from the native tribes of Central Australia. Because lists have not yet been received, it is impossible to state at this time the number of specimens added during the year to the Melanesian collections, resulting from the Joseph N. Field South Pacific Islands Expedition in charge of Dr. A. B. Lewis. The Department of Botany has received the usual annual additions of herbarium specimens, among which the following accessions are noteworthy: Britton & Cowell, Cuba, 53; Otto Buchtien, Bolivia, 205; Ralph W. Chaney, Michigan, 300; June A. Clark, Idaho, 211; Jesse M. Greenman, West Virginia, 387; David Griffiths, Arizona, 74; Marcus E. Jones, Utah, 211; A. Kranz, Germany, 359; Otto Kuntze, Argentine 141; Bolivia 225, Brazil 82, Chile 84, Venezuela 60; O. E. Lansing Jr., Illinois 102, Missouri 87, Wisconsin 73; Leland, Chase & Tilden, New Zealand, 167; Francis Macbride, Idaho, 305; B. Mackenson, Texas, 117; C. F. Millspaugh, Ceylon 53, Japan 88, Philippine Islands 57, Wisconsin 176; Nelson & Macbride, Idaho, 323; C. A. Purpus, Mexico, 451; Sandberg & Leiberg, Washington, 387; J. A. Shafer, Cuba, 402; Baron von Türkheim, Santo Domingo, 236; C. M. Weber, Philippine Islands, 260; F. Zuccarini, Germany, 222. W. E. Broadway, Tobago, 212. The organization (i. e. poisoning, mounting, cataloguing and installing) of the current accessions has been kept up to date and 11,078 sheets have been organized from the larger herbaria, secured by the Museum, in accordance with the following tabulation:

Herbaria.	Estimated Contents.	Organized 1912.	Previously Organized
A. A. Heller	14,603	....	5,264
J. T. Rothrock	22,510	302	22,507
A. Schott	8,671	....	8,428
J. H. Shuette	15,000	....	....
J. K. Small	21,528	229	12,943
University of Chicago	45,000	10,547	23,140

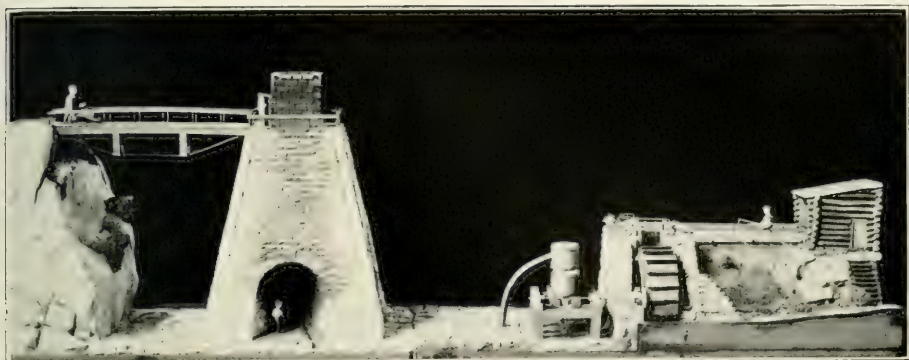
With the above, and various minor accessions, the additions to the

organized herbarium, during 1912, are shown in the following, geographically arranged, table which does not include those regions to which no additions have been received this year:

	Added to Herbarium 1912.	Total now in Herbarium.
NORTH AMERICA (in general)	121	131
Alaska (in general)	217	528
Amakauk Island	21	21
Atka Island	1	1
Japonski Island	3	3
St. George Island	11	11
St. Paul Island	3	5
Unalaska Island	31	31
Canada (in general)	42	2,002
British Columbia	25	980
Labrador	3	167
New Brunswick	8	752
Nova Scotia	1	148
Ontario	3	575
Quebec	33	121
Vancouver Island	1	231
Yukon	2	68
Newfoundland	247	712
United States:		
Alabama	27	1,048
American Plains	1	95
Arizona	1,566	9,364
Arkansas	56	275
California	2,924	21,967
Santa Catalina Island	1	25
Colorado	2,345	10,918
Connecticut	20	319
Dakota	15	35
North Dakota	217	401
South Dakota	23	107
Delaware	276	1,463
District of Columbia	48	1,968
Florida	1,283	19,916
Florida Keys	18	564
Georgia	87	4,449
Idaho	1,403	2,882
Illinois	949	18,809
Indiana	906	5,214
Indian Territory	105	254
Iowa	151	1,460
Kansas	111	372
Kentucky	265	935
Louisiana	188	1,239
Maine	332	1,552
Maryland	54	953

NORTH AMERICA (in general)	Added to Herbarium 1912.	Total now in Herbarium.
United States (in general)		
Massachusetts	223	2,906
Michigan	846	3,430
Minnesota	209	900
Mississippi	88	1,963
Missouri	394	2,491
Montana	363	3,507
Nebraska	79	240
Nevada	27	751
New Hampshire	195	1,358
New Jersey	317	2,423
New Mexico	177	2,672
New York	355	5,420
North Carolina	537	2,494
Ohio	61	1,536
Oklahoma	6	182
Oregon	1,596	7,524
Pacific Coast.	338	706
Pennsylvania	219	9,259
Rhode Island	63	544
Rocky Mountains	85	1,378
South Carolina	42	747
Tennessee	174	1,226
Texas	1,850	8,733
Utah	637	2,698
Vermont	699	2,546
Virginia	695	2,318
Washington (State)	1,702	6,250
West Virginia	520	1,801
Wisconsin	321	1,180
Wyoming.	67	854
Yellowstone National Park	117	400
CENTRAL AMERICA		
Mexico (in general)	4,192	32,434
Lower California	153	1,726
Carmen Island	18	22
Cedros Island	61	164
Guadalupe Island	34	74
San Benito Island	1	10
Campeche	1	28
Tabasco	1	5
Yucatan	27	4,671
Costa Rica	247	535
Guatemala	601	2,856
Honduras.	75	340
Panama (excl. Canal Zone)	12	58
San Salvador.	1	21

	Added to Herbarium 1912.	Total now in Herbarium.
WEST INDIES (in general)	8	22
Bahamas		
Eleuthera	2	686
Great Bahama	1	625
New Providence	9	2,407
Barbados	1	328
Bermuda	1	644
Cuba	1,193	9,424
Guadaloupe	1	1,509
Jamaica	57	6,558
Martinique	13	615
Porto Rico	18	3,992
Saint Thomas	7	445
Santo Domingo	236	712
Tobago	212	575
Trinidad	77	465
SOUTH AMERICA (in general)	5	5
Argentina	150	974
Bolivia	430	3,534
Brazil	101	397
Chili	88	249
Colombia	1	2,420
Falkland Islands	1	3
Galapagos Island	5	10
Paraguay	41	1,442
Patagonia	1	26
Peru	108	114
Uruguay	33	160
Venezuela	28	1,061
EUROPE (in general)	9	79
Austria-Hungary	513	6,466
Belgium	2	72
Denmark	2	2
France	346	4,391
Germany	915	6,867
Great Britain		
Anglesey Island	6	6
England	333	563
Ireland	8	152
Scotland	101	471
Wales	41	70
Wight, Isle of	1	31
Greece	8	520
Italy	571	2,386
Mediterranean Islands		
Capri	2	2
Corcyra	5	5
Corfu	1	1



MODEL OF EARLY BLAST FURNACE.



MODEL OF CATALIAN FORGE.

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EUROPE (in general)		Added to Herbarium 1912.	Total now in Herbarium.
Mediterranean Islands (in general)			
Corsica		1	2
Elba		2	2
Ischia		2	45
Sardinia		3	5
Sicily		17	109
Zante		3	3
Norway		7	216
Portugal		1	9
Roumania		1	1
Russia		85	1,574
Spain		84	135
Sweden		36	499
Switzerland		309	2,343
ASIA			
Afghanistan		1	1
Arabia		1	4
Armenia		54	174
Asia Minor (in general)		2	2
Asiatic Turkey (in general)		12	190
Palestine		8	1,142
Roumelia		1	1
Smyrna		2	2
Syria		2	72
Ceylon		56	65
China		47	259
India		86	942
Indo-China		3	3
Japan		119	220
Java		42	100
Philippine Islands		318	4,481
Siberia		2	410
Straits Settlements		12	12
Turkestan		6	89
Kerguelen Land		6	7
AFRICA (in general)		39	3,926
Abyssinia		1	193
Algeria		16	24
Canary Islands		28	32
Cape Colony		67	67
East Africa		1	1
Egypt		13	22
Galeja Island		2	2
Kaffraria, British		1	1
Madagascar		2	11
Mauritius		4	8
Morocco		1	6
Nubia		5	9
Orange Free State		6	8

	Added to Herbarium 1912.	Total now in Herbarium.
AFRICA (in general)		
Rodriguez Island	37	37
Saint Helena	1	1
South Africa	60	1,233
OCEANIA (in general)	9	9
Australia (in general)	82	1,919
New South Wales	71	414
North Australia	5	5
Queensland	3	19
West Australia	23	32
Friendly Islands	10	10
New Zealand	1,440	2,753
Sandwich Islands	51	452
Tahiti	86	86
Tasmania	8	190
HORTICULTURAL	23	2,009
ILLUSTRATIONS, DRAWINGS, etc., mounted as herbarium sheets	74	944

The total increase to the organized herbarium during the year amounted to 18,921 specimens. The material received for exhibition purposes during the past year proved highly gratifying both in character and amount. The principal accessions were the following: Alex. Campbell & Company, 29 examples of China teas; Prof. N. B. Ingraham, 13 Eucalyptols from California; The American Trading Company, Yokohama, 20 specimens of Japanese papers, paper materials and fibers; The Indian Museum, Calcutta, 297 ample specimens of vegetable oils, resins, gums, seeds, tans, dyes, etc.; the Botanical Garden at Peridynia, Ceylon, 23 fruits, fibers, barks and woods; the Pacific Coast Kelp Mulch Company, 9 specimens illustrating the extraction of rubber from sea weed; the Bureau of Forestry, Philippine Islands, 22 specimens of gums, woods and fibers; C. F. Millspaugh, collections made in the Sandwich Islands, Japan, China, Philippines, Straits Settlements, Java, Burmah, India and Ceylon, consisting of 362 specimens of fruits, seeds, gums, articles fashioned from crude vegetable substances, etc. The above material serves to fill gaps in many plant families and to round out that already on hand into installable form and sequence. The most important accession received by the Department of Geology during the year and one of the most important ever received by the Department, was that of the Ward-Coonley collection of meteorites. This collection was gathered by the late Professor Henry A. Ward during a period of about twelve years of effort devoted exclusively to this work, and at the time of his death was the largest private collection of meteorites in the world. Besides material gathered directly by Professor Ward, his collection included the large private collections

of the late James R. Gregory, and Count Siemaschko. The addition of this magnificent collection to the large one already possessed by the Museum gives the institution the distinction of possessing the largest collection of meteorites in the world. Nearly all known meteorites are represented, the total number of falls possessed being 650 out of a possible 700. Moreover the representation of most of the falls is large and adequate. Of the following falls the representation in the newly acquired material is larger than in any other collection: Ballinoo, Barratta, Bath Furnace, Bluff, Canyon City, Canyon Diablo, Castine, Central Missouri, Costilla Peak, Estacado, Illinois Gulch, Indarch, Luis Lopez, MacKinney, Ness County, Oakley, Pavlodar, Petersburg, Pipe Creek, Roebourne, Saint Genevieve, Surprise Springs, and Ute Pass. The weight of the combined collections is nearly double that of the Vienna collection, hitherto the largest, and exceeds it in number of falls. The large collections of the British Museum and of Paris, Berlin, Washington and New York are also considerably surpassed by the Museum collection either in weight or number of falls or both. The relation of the Museum's collection to the world's other large collections according to their latest catalogues is shown as follows:

Institution..	No. of falls.	Weight.
Field Museum of Natural History . . .	650	7,824 kgs.
Vienna Museum, Catalogue of 1902 . . .	560	3,313 "
British Museum, Catalogue of 1908 . . .	580	5,822 "
Paris Museum, Catalogue of 1909 . . .	532	2,258 "
Berlin Museum, Catalogue of 1904 . . .	450	246 "

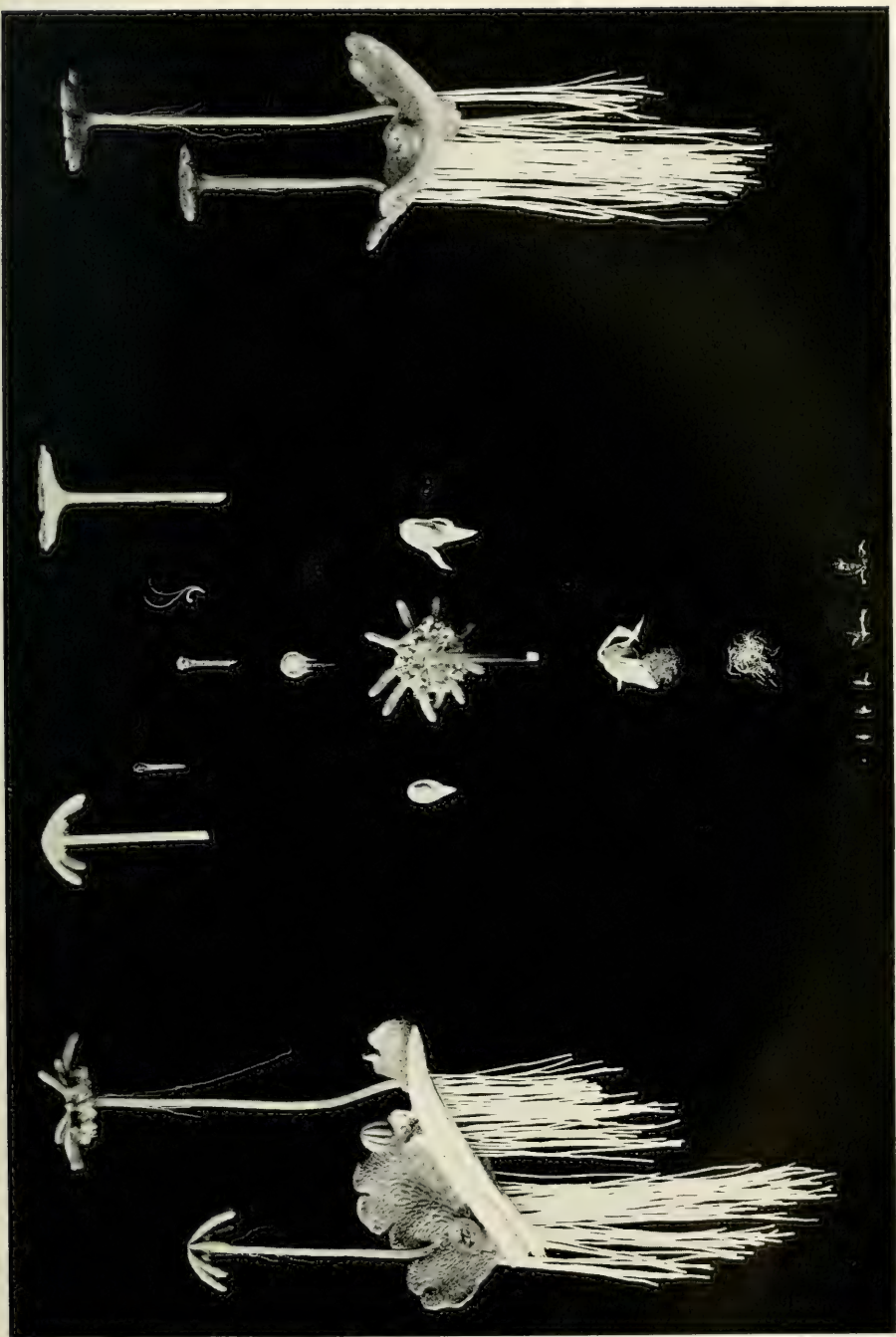
Other additions by exchange, purchase, etc. were made to the meteorite collection during the year. These included a section of the Kermichel meteorite by exchange with M. de Mauroy of Wassy, France, several hundred specimens of the Holbrook, Arizona, fall by exchange with Foote Mineral Company, three specimens by exchange with Julius Böhm, Vienna, and sections of the Hermitage Plains and Kingston meteorites by purchase. A specimen of the Kilbourne meteorite was also acquired. An important addition to the economic collections was a series of crude petroleums from 228 separate localities in Oklahoma, Texas, Wyoming, West Virginia, and other states. These petroleums for the most part had been fully analyzed, and thus form a type collection of great value. The collection was presented by the United States Geological Survey through the kindness of Dr. David T. Day. The largest specimen of mineral wax ever washed up on the Pacific Coast was presented by Mr. C. H. Marsh of Marshfield, Oregon. This wax is similar to the small pieces that have for many years been

brought by the waves to the Coast. The piece presented by Mr. Marsh weighs about twenty pounds. He also gave specimens of agate, obsidian, etc., from Oregon. Mr. Louis V. Kenkel of Seattle, Washington, presented 50 specimens of ores and minerals from important and relatively inaccessible mining districts in Alaska, and thus added completeness to the series of ores from that region. Several collections received by gift or purchase contained material of value. These included 224 specimens of fossils and 116 specimens of rocks and minerals presented by Mr. Charles Winston of Chicago, a collection of about 200 specimens of fossils, minerals, ores and one meteorite presented by Dr. H. P. Woley of Chicago, 135 specimens of invertebrate fossils from Iowa presented by Mr. A. G. Becker of Clermont, Iowa, and 236 specimens of fossils and minerals purchased from Mrs. Josie Pratten. The last named collection contained many specimens of historical interest, especially relating to early researches in the geology of Illinois. They included a number of types or supplementary types. A valuable specimen of emerald in matrix was presented by Mr. W. S. McCrea of Chicago. Mr. John H. Muir of China gave an interesting series of rocks and minerals from the interior of Tibet. These included minerals used in bread making. A series of alundum and its products presented by the Norton Company of Worcester, Massachusetts, makes a valued addition to the collection of abrasives. By exchange, about 50 specimens of valuable mineral specimens representing localities or species not hitherto possessed in the collection were received from the Foote Mineral Company. By collection about 1,500 specimens of invertebrate fossils were added. These were obtained by the Assistant Curator of Invertebrate Paleontology near Clermont, Iowa, and Little Traverse Bay, Michigan. The accessions in the Department of Zoology during the year were comparatively unimportant and limited in number, except those obtained in the field mentioned elsewhere.

EXPEDITIONS AND FIELD WORK.—The main field work of the Department of Anthropology was that of the Joseph N. Field Expedition in charge of Dr. A. B. Lewis. During the year nearly 100 cases of additional material have been received from Dr. Lewis who is now on his fourth year of this Melanesian Expedition. After a somewhat extended visit late last year to the New Hebrides, Dr. Lewis returned to Sydney in January of this year, to re-equip preparatory to spending a year on the south coast of New Guinea, the first part of the year being devoted to British New Guinea, the second to Dutch New Guinea. Dr. Lewis is now on his way home. It is not known at this time how many specimens have been acquired as a result of this expedition, but they

number many thousands and the collection forms one of the largest, most important, and most interesting ever acquired by the Museum through field work. Practically every region of Melanesia is represented. Dr. Lewis has supplemented his specimens by numerous photographs, anthropometric measurements, and photographic records. To date 277 cases have arrived at the Museum as a result of the expedition. Of these 91 have been received this year, and it is known that at least 21 cases additional are on the way. A great many of these cases exceed 10 feet in length, with other dimensions to correspond. With a view to securing as much economic material as possible for installation in the Department of Botany and to gain the co-operation of botanical institutions in the far East, the Curator began, in August, 1911, an expedition for that purpose. He visited Honolulu, where he was accorded a welcome by Dr. Wm T. Brigham of the Bernice Pauahi Bishop Museum, and collected about the city during a few hours' stop at the Island. In Japan exchange relations were established with the Imperial Botanical Institute in the Koishikawa, Tokio; the Japanese Imperial Forestry Bureau at Meguro; and arrangements made with the American Trading Company of Yokohama; many interesting specimens were secured from the city and village markets and shops. In the identification of material valuable assistance was received from Professors J. Matsumura and K. Fujii of the Botanical Institute. A few hours' stop in Shanghai added other interesting specimens from the bazaars, as did also those of Hong Kong and Canton. A nine days' stop in Manila and Los Baños resulted in the establishment of exchange relations and co-operative bases with the Philippine Bureaus of Forestry, Education, Agriculture and Science, and some 60 specimens were accumulated from the shops and markets. The longest stay was at the Botanic Gardens, Buitenzorg, Java, where the Curator was accorded every convenience and facility in the laboratories and gardens, and among the duplicate collections, as well as the valuable assistance of the Director, Dr. Königsberger and his assistant Dr. von Faber. Here Dr. Millspaugh made water color studies, photographs and formaldehyde collections of a number of tropic genera for reproduction by the Section of Modeling, as well as market and field collections amounting to 250 specimens. In his searches through the markets he was kindly assisted by Mr. Heyne of the Botanic Technological Museum. In Burmah a number of items of economic interest were secured from the bazaars at Rangoon. In Calcutta he was given carte blanche to select such material as was desired from the large surplus stock of the Botanical Department of the India Museum and thus secured over 400 specimens of seeds, oils, gums, resins, dyes, etc. of more than

ordinary interest and value. Through the kindness of Mr. I. H. Burkhill, Reporter on Economic Products, and Mr. Hooper, the Curator, as well as that of Captain Gage, Superintendant of the Botanical Garden at Sibpur and Mr. Ralph H. Pearson, Forest Economist at Dehra Dun, relations were established that will prove of great value in the future acquirement of exhibition material. In India considerable additional material was secured at Benares, Delhi, Agra, Jeypur, Bombay, Madras and Madura. At Kandy, Ceylon, co-operative relations were established with the Botanic Garden at Peridynia through the kindness of the Acting Director, Mr. R. H. Locke who has since sent in some very important and interesting specimens for installation. Returning via Europe a few days were spent in Munich in drawing out some one thousand herbarium specimens from the collection of duplicates of the older Bavarian collectors. O. E. Lansing, Jr., of the Department has continued, at odd intervals, to collect plants of the Lake Chicago Basin in Illinois and Indiana. He has also made several trips afield to secure living material for the use of the Section of Modeling; and has made a trip to Vermilion County, Illinois, and to Richland County, Wisconsin, principally to secure herbarium material for exchanges. The dendrologist, Assistant Curator Huron H. Smith, has continued his work of securing specimens of Pacific Coast trees during the past year; he has sent in a number of shipments of material; and has continued to collect herbarium specimens at each of his stations. The material is not yet organized and therefore does not appear in detail in this report. The Assistant Curator of Invertebrate Paleontology examined a number of exposures of beds of Maquoketa age in Fayette County, Iowa, and procured about one thousand specimens there. Of these specimens about 550 were brachiopods, 200 trilobites, 100 crinoids and cystids, and the balance corals, sponges, pelecypods, gastropods and cephalopods. Special attention was paid to the collecting of trilobites in the region with the result that two new species were obtained and much additional material secured which will throw light on the structure of previously known species. Two new species of crinoids were also secured. This material, taken in connection with that obtained by the trip to the same locality in 1910, affords specimens upon which the description of one new genus and eleven new species of trilobites and one new genus and four new species of crinoids and cystids will be based. Of twelve of these the Museum will possess the types. Material for re-description of six previously known species of trilobites was also obtained. Besides material of descriptive value, some good



LIFE HISTORY OF A LIVERWORT.
(*Marchantia polymorpha*).

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exhibition material was obtained, including four separate slabs of trilobites. The largest of these slabs has a surface of about one square foot. Mr. A. G. Becker of Clermont, Iowa, gave valuable assistance in the work of collecting in this locality. Great progress has been made during the year in the zoological exploration of South America. Assistant Curator W. H. Osgood and Assistant M. P. Anderson conducted an arduous expedition over the Andes of northern Peru and thence across the continent by way of the Amazon River. They sailed from New Orleans January 25, crossed the Isthmus of Panama, and thence proceeded down the Pacific Coast to Peru. After a few weeks' work on the arid coast of Peru, they started inland with pack mules and gradually worked across the Andean ranges and descended to canoeing waters on the upper tributaries of the Amazon River. At this point Mr. Osgood continued rapidly down the Amazon by regular means of transportation and returned to the Museum late in October. Mr. Anderson remained to work in the little known upper Peruvian Amazon region and later entered Brazil. Mr. Becker was despatched in December to join him in that country for work in the coming year. At the date of last shipments, some of which are still in transit, over two thousand specimens had been obtained of birds and mammals of which practically all were previously unrepresented in the collections and of which doubtless many will prove when studied to be new to science. The collection is particularly valuable and representative since it includes material from regions of such varied character, the arid Pacific coast, the high Andean *paramos*, and the hot tropical Amazonian forests. During the past season the Curator made several local trips to points in southern Michigan and northern Illinois and secured a number of photographs of birds and mammals and many notes relating to migration and habits to be used in future publications. Early in January Assistant Curator Meek left for Panama to continue field work on the Biological Survey of the Canal Zone. During most of January and February he collected fishes in the salt water on both sides of the Isthmus. The latter part of February and first week in March were given to exploration of the Tuyra River which drains the southeastern portion of the Republic of Panama. The last three weeks of March collecting in salt water was continued. On April 4, Dr. Meek reached Costa Rica and collected in the streams most accessible on both sides of the Republic during the rest of the month. The Costa Rica collection contains over 2,000 specimens, representing about 60 species, 10 of which have been described as new. The Panama collection made during the past two years contains about 50,000 spec-

imens, representing in all about 600 species, practically half of which is the property of this Museum. Following is a list of the expeditions since the date of the last report:

Locality.	Collector.	Material.
South America	W. H. Osgood and M. P. Anderson	Birds and mammals.
Pacific Coast	H. H. Smith	Timbers, economic material and herbarium specimens.
Southern Florida	C. H. Carpenter	Botanical specimens.
Illinois and Michigan	C. B. Cory	Mammals, photographing and migration work.
Peru, Chile, Argentina and Brazil	R. D. Salisbury	Geological specimens.
Iowa	A. W. Slocum	Invertebrate fossils.
South Pacific Islands	A. B. Lewis	Melanesian Ethnology.
California	W. Heim	Fishes.
Arizona	C. L. Owen	Hopi Ethnology and Archaeology.
Illinois and Indiana	O. E. Lansing, Jr.	Herbarium specimens.
Japan, China and tropics of the Old World	C. F. Millspaugh	Economic material and herbarium specimens.

INSTALLATION, REARRANGEMENT AND PERMANENT IMPROVEMENT. — During the year more than 70 cases of material never before exhibited have been installed in the Department of Anthropology. To provide space for these cases, for work of installation, and for the arrival of cases, has necessitated much rearranging and the condensing of certain collections. Hall 45 has been repainted and refloored and is completely filled with a portion of the material of the Blackstone Chinese collection. To allow for the proper classification and cataloguing of the Chinese collection, Halls 50 and 51 have been temporarily closed to the public, and the cases condensed as much as possible to make room for worktables. The lid of the Egyptian sarcophagus has been restored and installed in what is believed to be a unique and highly satisfactory manner above the body of the sarcophagus. The most important change affecting a single collection or group of collections during the year relates to the Joseph N. Field Melanesian collection. Till recently this material, resulting from four years of expedition in the South Pacific Islands, together with an expedition of the Curator's, the Parkinson, and Voogdt collections was scattered through various halls both in the East and West Annexes. They have all been transferred to Hall 71 in the East Annex, the material being partially classified to await Dr. Lewis' arrival. Meanwhile all the unpacked material sent in by Dr. Lewis, has been grouped in Hall 72. Recent acquisitions of Kabyle and Etruscan jewelry have been temporarily installed

in Higinbotham Hall. Models of Asiatic water craft and other Asiatic ethnological material have been transferred from the large case recently demolished in Hall 39 and placed in temporary storage in Hall 49. Large specimens of Pueblo pottery, occupying the top of the above mentioned case, have been transferred to Hall 8, to await a readjustment of material now there stored. The great Cheyenne skin tipi, also necessarily removed from Hall 39, has been installed in Hall 45. To make Halls 46 and 47 ready for Chinese collections, has necessitated the transfer of certain collections. Over 2,000 specimens of archeological material from Calchaqui, Argentina, have been removed from Hall 46 and stored in Alcove 90 of the East Court. Several hundred Eskimo specimens have also been removed from Hall 46 and stored in special cases in Hall 4, awaiting necessary re-installation of the Eskimo material. Several hundred specimens of Mexican ethnology belonging to the Starr collection, were removed from Hall 47 and placed temporarily in standard cases in the East Court, awaiting re-installation. Owing to the urgent and immediate need of cases, two, installed with ethnologic material from Australia, but which because of the addition of new material would necessarily be re-installed, were emptied of their contents which was placed with other Australian collections awaiting re-installation. The same treatment was accorded a case of material from New Caledonia. To prepare Hall 39 for the reception of Philippine material, one old case was demolished, its contents transferred elsewhere, and four cases of Apache and one of Havasupai ethnologic material were removed to Hall 1. The Rio Grande Pueblo material, formerly occupying Hall 1, has been removed from the cases and placed in storage to await re-installation when more suitable cases are available. The cases in which this material was installed were transferred to the East Annex and turned over to the Asiatic section for the installation of Chinese material. The Eskimo material in the bases of the cases in Hall 1 has been placed with other similar material in Hall 4, as has been the small collection of Patagonian ethnology. To make room for the seven new Hopi altars reproduced with funds presented by Mr. Stanley McCormick the cases in Hall 15 have been re-arranged and condensed in order to care for certain cases transferred from Hall 17. The ethnologic material, secured as a result of the Stanley McCormick expedition of 1911, recently stored in Hall 45, has been placed in storage in Hall 16. The Philippine material collected by the Robert F. Cummings' Expedition has been installed in 45 cases during the year. Besides the contents of 6 cases, installed last year in old cases, have been re-installed in new standard cases. Of these three were Apayao, two Igorot, and one Kalinga. To make

more effective the installation of the Philippine material, the Modeler has prepared about 100 papier-maché forms for the special display of clothing of certain Philippine tribes. A special exhibit has been prepared showing the method used by the Bagobo in casting and incising brass. All of the 45 cases of Philippine material above referred to may be regarded as permanently installed, for each case has been provided with labels, photographs, and, where necessary maps. The Bagobo cases are devoted to: Household utensils, substitutes for lamps — torches, holders, etc.; riceplanters,— utensils used in gathering, storage, and preparation of rice; transportation and storage baskets, horse trappings, etc.; ceremonial articles and musical instruments; warfare and chase,— shields, knives, spear bows and arrows, bow-guns, traps and decoys; men's ornaments,— betel-nut outfits and carriers for same, working knives; casting of brass bells, rings, etc., manufacture and decoration of bracelets, warrior's turbans, pottery, weapons, and waterproof baskets; clothing showing decoration in embroidery, shell disks, and beads, decorated carrying bags; women's dress and ornaments, case showing nine complete outfits, together with ornaments and weapons from the little-known Divavaoan tribe of Central Mindanao, case of household utensils, clothing, weapons, and musical instruments used by the Tagbanua of Palawan, also specimens of native writing on bamboo tubes. The Moro cases are devoted to: Weapons,— fighting knives; weapons,— cannons, spears, shields, and coats of mail; clothing and types of cloth manufactured by this tribe; brass bowls, dishes, betel-nut outfits, etc.; horse-trappings, etc. The Bukidnon cases are devoted to: Household furnishings,— hammocks, baby cradles, torch holders, water tubes, dishes, etc.; household utensils,— corn crushers, rice mortars and other utensils for preparation of rice and other field products; transportation baskets; fishing,— nets, traps, fish-arrows, etc., manufacture and dying of mats, types; Chinese jars, inlaid storage boxes, house-carvings, toys; musical instruments, ranging from the most primitive to those carved to resemble animal forms; women's clothing and ornaments; men's clothing; betel-nut outfits, hemp coats of mail, head-hunters' ornaments and charmed sashes; warfare,— spears, shields, bows and arrows, etc.; industries,— forge work, cane press, etc., traps; ceremonial objects and house model; textile industry,— all stages in manufacture of hemp cloth. The Bila-an cases are devoted to: Betel-nut outfits and cases, weaving, etc.; woman's dress showing fine embroidery; man's dress, showing fine embroidery; spears, knives, shields, bows and arrows, blow-guns, snares; household,— manufacture of baskets, sago-maker's outfit. The Kulaman cases are devoted to: Warfare and chase; household; mats, baskets, rice

culture, etc.; cloth and clothing, showing peculiar method of decoration by oversewing the fabric prior to dyeing; two cases showing household utensils, implements and weapons of the pigmy blacks or Negritos. The Amburayan Igorot cases are devoted to: Musical instruments, long drums, gongs, etc.; fish traps, etc.; transportation; wooden and rattan boxes for fire-making outfits, etc., manufacture of same; wooden boxes, dishes, carved spoons, etc.; household utensils; copper bowls of native manufacture; clothing and manufacture of same. In the Asiatic section 22 new cases have been installed, so that it was possible to open Hall 44 last June. The Hall contains 21 cases, the material being distributed as follows: 8 cases of Han pottery, 2 of mortuary clay figures, 1 of jade, 1 of bronze implements, 1 of textiles, 1 containing tin, wood-carving, enamel, and miscellaneous; 4 of paintings; 1 illustrating wood-engraving and printing, and 1 containing a screen with inlaid feather work. The metal mirrors have been withdrawn from the North Court and permanently reinstalled, being arranged in chronological sequence, in Hall 45. Three cases, one of silver ornaments; one of coins, and one of seals and medals; and one of early Buddhist bronze figures of the Wei and T'ang periods, have just been completed. The Buddhist masks from China and Tibet have been unpacked, arranged, and catalogued, and plans have been made for their installation in the rotunda. The collection of porcelain and faience has been completely labeled and temporarily arranged in chronological order in the Wall Cases of Halls 46 and 47, awaiting permanent installation as soon as new cases are provided. The stone sculptures have been spread out in chronological arrangement on tables in the same hall, and it is now possible to survey the Chinese material in its entirety. The Tibetan material is still packed away in storage cases, but in such condition that any specimen needed can be consulted at once. The Modeler has made a cast of an inscription stone after a rubbing, to be placed on the stone carving of a tortoise of the T'ang period. He has also completed casts from a number of seals, as well as from inscriptions and reliefs on metal and pottery vases. These have been used for exhibition purposes and largely aid toward grasping the scenes displayed on the reliefs of the Han pottery vases, which are laid around the shoulders in circular bands. The casts have been unfolded and allow a viewing of the designs in a continuous row. Casts of two ancient Chinese weights have been made at the request of the Director of the Deutsches Museum in Munich and sent there as a gift of the Museum. Two cases containing Japanese color-prints, acquired with funds of the Mrs. T. B. Blackstone Expedition, have been installed in Hall 56, individual explanatory legends being

printed on the mats of each sheet. The process of Japanese wood-engraving and color-printing is illustrated in comparative view with the analogous processes of China and Tibet in a case installed in Hall 44. Many specimens of ancient Japanese textiles and books illustrating costumes and designs are on exhibition in the same Hall. Besides a large amount of work which the Section of Photography normally does for this Department an especially large number of photographs have been prepared for Dr. Laufer to illustrate publications or for exhibition purposes. It is gratifying that the collection has already attracted the attention of students from abroad and has been studied by several, among whom are Dr. William Cohn and Dr. Munsterberg of Berlin, the Museum Commission sent by the City of Munich, and Mr. Lawrence Binyon of the British Museum. American students interested in the East and engaged in Museum work or intending to pursue researches in the Orient, have availed themselves of the opportunities offered by the Museum collection,—e. g., Mr. Curtis and Dr. Denmar Rose of the Boston Fine Arts Museum; Mr. Crane, Trustee of the Newark Museum; Miss K. Ball, Superintendent of Art Education of San Francisco; Mr. Whiting, Director of the Art Museum of Indianapolis; President Wheeler of California University; Dr. Barrett of the Public Museum of Milwaukee; Dr. Carus, Editor of the *Monist* and the *Open Court*, and numerous collectors. No new cases have been added to the Department of Botany though many of the old installations have been rearranged, augmented, and preparations made for the rapid installation of new cases now under construction. The case devoted to the Orange Family has been re-installed through the addition of reproduced leafy branches with one or more ripe fruits of the Pumelo or Shaddock (*Citrus decumana*) and a transverse section of the fruit; the Mandarin orange and the Tangierine (*C. nobilis*); the usual and the fingered Citron (*C. medica*) with sections of each; the rough Lemon (*C. limonum*) of the tropics; the Navel Orange (*C. aurantium*); the sweet and the sour Lime (*C. Limetta*), leaving only the Bergamot wanting to complete the representation of this family. The Custard Apple family has received the addition of a leafy branch with ripe fruit of the Bullock's Heart or Custard Apple (*Anona reticulata*); the Bamboos a reproduction of a full ripe and sprouting seed, a rarity, as the bamboos seldom perfect fruit. The botanical characters of the Buckwheat family are now represented by a complete, natural size, branch of the Sea Grape (*Coccoloba uvifera*) in full leaf, flower and fruit. The first case of the three devoted to the Madder family now contains a full size branch of the Coffee shrub in full flower and fruit as well as an enlarged flower showing its characters; a natural

size "berry" in section and a fruit enlarged to reveal its various parts; the Sapodilla family has received the addition of a natural size branch of the Sapodilla tree in full leaf and fruit, an enlarged flower cluster, and a fruit of the Star-apple with leaves; the Milkweed family has been augmented with an enlarged flower of the rosy Milkweed (*Asclepias incarnata*) showing also the method of its cross fertilization (three models); in the Arrowroot family three enlarged flowers have been modeled and installed illustrating the natural preventive measures evolved to prevent self-pollination. A branch has been added to the Pine-apple family representing the more usual mode of growth of plants of this family as aerophytes resting upon other plants, i. e. *Tillandsia recurvata* growing upon a leafy branch of the Calabash tree. The Snakeroots have received the addition of a full size reproduction of the Swan-flower vine comprising a portion of the whole plant with several leafy vine sections bearing an unexpanded flower and one, fully opened, from eight to ten inches in diameter; also a flower in section showing the peculiar provision for fertilization by insects, together with an enlarged section of the ovary and the column of essential organs. To the Rose family there has been incidentally added a reproduction of a pair of interesting hybrid apples each showing a clearly demarked half of two varieties. To the Clove family a natural size reproduction of a full flowering, leafing and fruiting branch of the Guava tree has been added, to the Arums the full fruiting head of the Indian Turnip and to the Lily family a complete flower of the wild Lily showing its characteristic organs. Attention to the representation of the multitudinous cohorts of lower plant life, the non-flowering plants, most of which require modeling through the use of the compound microscope, is now begun and the following results placed on exhibition: A natural size reproduction of a Giant Puffball, 14 inches in diameter, and a section of the same; a colony of Inky Mushrooms, in situ, comprising a "button," a full freshly expanded plant and one in the deliquescent stage dropping its spore-charged inky liquid. The Liverworts are represented through the following models: A natural size reproduction of a mass of plants of *Marchantia* in situ; an enlarged transverse section of a thallus with male branches, rhizoids, gemma buds and open cups; a longitudinal section of a thallus with female branches; a life-history group showing a female branch, in section, disclosing the archegonia, an archegonium in section showing the egg-cell, another showing a sperm-cell entering its neck below; a male branch, in section, disclosing the spermaries, and a sperm-cell — all modeled highly magnified; another life-history group representing a female branch with spore-capsules (*Sporogonia*) in situ; an embryo formed from the fertilized egg-cell, another with

its envelopes ruptured, and a third fully developed and discharging its spores; a dense cluster of spores and elaters; the germination of a spore in four stages; and the formation of a young thallus in two stages. The Horsetails (*Equisetæ*) are represented by a reproduction of a sterile shoot natural size; a fertile shoot in spore producing stage; and the beginning of a life history sequence showing, so far, a greatly enlarged section of the female "cone" and the spores in four different states of expansion of the elaters. The staff of the Section of Modeling now comprises the following artists and artisans: A modeler who is chief of the Section, an assembler, a glass worker, a colorist, and a caster and trimmer. The Section has executed a large amount of work during the past year which is embodied in 10 complete reproductions of leafing, flowering and fruiting branches each composed of about 650 separately made parts; 20 separate fruiting branch reproductions and 8 enlarged flower representations comprising an average of 5 separate models each. The following table showing the parts comprising an average "whole plant" reproduction will give an idea of the work required in these assemblages:

	Branchlets.	Leaves.	Flower parts.	Fruits.	Buds.
Coffee	12	77	288	188	63
Mangrove . . .	27	359	164	25	17
Sea Grape . . .	16	98	150	216	400

The work of revision of the petroleum collection which was interrupted by the dismantling of the West Annex was resumed during the year by the Department of Geology and has been carried as near to completion as the limited space at present available will permit. The petroleum, their liquid derivatives and most of the vaselines were transferred to new, tall, oil-sample bottles in which the specimens appear to much better advantage than they did in the old style containers. These bottles have permitted a much more compact installation and thus room has been found for a large number of new specimens of crude petroleum and much material that it was previously necessary to store. The series as now exhibited consists of a large collection of petroleum of the United States, a collection of oil-bearing rocks and associated fossils, a collection of lubricating and other heavy, refined oils, a collection of vaseline and its preparations, a collection illustrating applications of paraffin, some miscellaneous petroleum products, and a quantitative collection illustrating the varied products obtained from refining crude oil. The old order of installation of the petroleum principally according to color has been abandoned and a strictly geographical arrangement substituted. The unit group of this arrangement is the oil field and each group has been provided with a large label

describing the field and in a few words and in simple language, the more important features of the oils of that field. The heavy oils and lubricating oils are grouped according to method of manufacture into reduced oils, paraffin oils, etc., and according to their uses into spindle oils, engine oils, cylinder oils, etc. Groups of kerosenes, gasolines and naphthas are not shown for obvious reasons. The few specimens of these needed to logically cover the subject of petroleum and its derivatives are represented by bottles filled with a non-freezable mixture of alcohol and water. At the time the petroleum collection was removed from the west annex plans had been made for a rather complete collection illustrating the applications of paraffin. For such part of this material as had already been prepared room has been found in the cases. The display consists of paraffins, candles and a number of articles illustrating the applications of paraffin, especially its application to articles of ordinary household use. Although as it stands this collection is rather fragmentary, completion of the paraffin exhibit as planned is barred at present by lack of space. The vaseline exhibit has been transferred from the somewhat heterogeneous lot of bottles in which it was hitherto displayed to uniform, tall, oil-sample bottles of the kind used for the crude petroleum. The collection on exhibition contains examples of the materials from which vaseline is made, vaselines of several grades, and vaseline preparations adapted to many toilet, pharmaceutical and other uses. A variety of objects in the preparation of which gasoline or kerosene has been used are also shown to illustrate the use of these materials in dyeing, painting, lacquering, and various other arts. A series of selected specimens of oils and their associated fossils is shown in sufficient number to illustrate the conditions under which the valuable deposits of petroleum occur. A complete quantitative exhibit illustrates the quantity of each product, intermediate or final, yielded by refining one barrel of petroleum. This formerly occupied several large cases but by avoiding unnecessary duplication a complete exhibit has been installed in one wall case. It has moreover been arranged in a more logical order, and thus the refining process may be followed more readily than formerly. As it now stands a barrel representing one barrel of petroleum occupies one end of the case and the products of distillation the rest of the case. The lighter oils are placed in the upper part of the case and heavier oils and solids in the lower part. Large labels by the side of each specimen explain in simple language just what the specimen is, how it is prepared and what becomes of it. Individual labels have been printed and placed for all the specimens, and also group labels wherever such labels can be used to advantage. While the whole of the material formerly exhibited

cannot be displayed at the present time, it is believed that the alterations in the method of installation are such that the educational value of the collection is greater than it was before. The collections of gold, silver and lead ores in Hall 34 which had been only temporarily reinstalled after their removal from the west annex were given careful revision. Although no great changes were made, slight alterations in the positions of over a thousand specimens were instituted so as to improve the general appearance of the installation and aid especially by displaying in as good a light as possible the important features of the individual specimens. The placing of new labels was carried out at the same time. A number of specimens from the quartz-gold and copper mines of Alaska and a few other individual specimens were added to the exhibition series in this Hall. The collections of alkalies, abrasives and allied material in Hall 31 were cleaned and more or less rearranged in such a way as to secure the best illumination. This involved in a few instances the interchange of sections of the collection, but principally was accomplished by a rather tedious placing of the individual specimens in many positions and at many angles until the best position had been found for each specimen. Considerable rearrangement of the abrasives collection was also required to make room for a recently acquired collection of artificial corundum. An Australian coal column was installed in Hall 33 and encased in glass to insure its protection. In Hall 59 the contents of two cases were rearranged and condensed in order to devote one to the exhibition exclusively of the fine series of fossil mammals collected in 1910 from the Uintah basin. The collection as now exhibited is much the most complete and representative of the mammals of the lower Uintah formation ever shown. It includes twenty-four skulls and much other skeletal material. The types of one new genus and four new species recently described by the Assistant Curator of Paleontology form a part of the series. Two models of early forms of iron-smelting furnaces were built in the Department work rooms and placed on exhibition. These models are part of a series showing the development of the blast furnace and supplement the modern blast furnace already on exhibition. One of the models represents the stone-stack cold-blast furnace as it was developed during the first half of the 19th century. It consists of a pyramidal stone furnace 8 inches square at the base and 12 inches high. The working arch at the base which faces the front of the model shows the tump and dam in use at that time. The two tuyere arches at the side show the fire-clay tuyeres entering the furnace. At the top of the furnace are shown the charging doors. To the right of the furnaces limestone cliff rises to the level of the furnace top, and



HABITAT GROUP. WHOOPING AND SANDHILL CRANES (*Grus americana*). (*Grus mexicana*).
Field-Sprague Ornithology Fund.

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a roadway on the top of this bluff is continued to the furnace top by a wooden bridge on which appears a man transporting a load of ore to be fed into the furnace through the open charging doors. At the right of the model the blowing engine appears with the dam and water wheel to drive them. These engines are two wooden tubs one inch in diameter with a third of the same size above for an air reservoir. The iron piston rods are driven by a very primitive type of wooden walking-beam which in turn is operated through a shaft by a gearing upon the circumference of a water wheel. This wheel is a breast wheel 3 inches in diameter and 1 inch wide and represents upon the scale of the model, $\frac{1}{4}$ inch to the foot, a wheel of about 12 to 15 horse power. The wheel has an iron shaft turning in iron boxes, an iron spider and wooden buckets. The dam and retaining walls are built of limestone and in part of wooden planks, while the mill race is built of wooden plank backed apparently by earth well turfed. At the extreme right of the model a small log cabin is built over the mill race. Around the furnace and blowing engines a stone-paved court is placed, while the region around the mill race and tail race, to and from the wheel is a hillside covered with imitative grass, bushes and trees. The channels to and from the water wheel contain a liquid resembling water. The water wheel is very carefully balanced and the journals and bearings so carefully constructed that when the "water" is allowed to run over the dam the wheel can turn and operate the blowing engines. In operating, a concealed pump takes the water from the tail race and delivers it to the upper level so that whenever the pump runs, the water wheel turns and operates the blowing engines. The slight power required for this purpose is, however, not available in the present building. The second model built and put on exhibition represents a Catalian Forge as it was operated at the close of the 18th century. This model is 30 inches long and 14 inches high, and is upon a scale of $\frac{1}{2}$ inch to the foot. It consists of a building, a forge, a hammer and a blowing device. Of the building three stone walls are shown and rather elaborate roof timbers. The forge, but little more elaborate than a blacksmith's fire, occupies a space of 13 $\frac{1}{4}$ by 2 inches inside the building and against one wall. The rest of the space inside the walls is nearly filled by a great wooden hammer and its iron-capped stone anvil. The hammer consists of a wooden beam pivoted at its center and movable by a lifting and tripping device operated by a water wheel not shown. On the opposite end is a hatchet-shaped iron head. Outside the building is shown a trompe, a water-actuated device for producing a blast of air to force combustion in the forge. As here shown the trompe consists of a device fed by a wooden canal leading water from a brook at a high

level. From the bottom of this canal two hollow logs drop vertically to a wind chest in which air entrapped by the water falling through the hollow logs is collected. From this wind chest the air is conducted to the forge by hollow logs, leather and iron pipe, and a sheet copper nozzle or tuyere. In the laboratory of vertebrate paleontology attention has been chiefly given to preparing the series of Uintah fossil mammals collected in 1910. This series has now been practically all prepared. The following specimens were worked out during the year: Two skulls and one lower jaw of the low-ground ungulate *Metarhinus riparius*; one skull of the closely allied *Metarhinus cristatus*; two skulls and one nearly complete skeleton of the large river titanotheres *Dolichorhinus longiceps*; a skull of the new species *Mesatirhinus superior*; a skull of the new genus *Rhadinorhinus*; one skull and two pairs of lower jaws of the early rhinoceros *Amyrnodon*; an incomplete skull of the great horned amblypod *Eobasilus*; one of the nearly allied *Uintatherium*; two lower jaws of the small cursorial mammal *Triplopus*; an incomplete skull of the archaic and little known *Stylinodon*; and a large and well-preserved skull of the broad-headed *Crocodylus*. All of these skulls or skeletal portions where desirable have been mounted with metal supports on standard bases with the exception of the skeleton of *Dolichorhinus* which was mounted in half relief in plaster preparatory to installing it in a special floor case now in process of construction. The specimens thus prepared and those of the same region worked out previously afforded the Assistant Curator of Paleontology material upon which a description of the fossil-bearing horizons of the Uintah formations and a description of a new subfamily, one new genus and four new specimens of titanotheres were prepared and published during the year. Opportunity was also found for preparation in the laboratory of vertebrate paleontology of some additional material collected on previous expeditions. This included among material collected by the expedition of 1906, a complete skeleton and additional skull of *Stenofiber barbouri*, two skulls of *Pleurolicus leptophrys* and portions of skeletons of allied species, and from material collected in 1905 a skeleton of *Merycoidodon gracilis* and partial skeletons or skulls of *Ischyromys cristatus*, *Aceratherium* sp. and *Protoceras celer*. Work upon the study series of the mineral collection was carried on at intervals as opportunity could be found and the groups of carbonates and oxides were fully rearranged. Individual trays were provided for the specimens and they were labeled and grouped according to species and localities. The chemical laboratory with apparatus and equipment was moved from Jefferson Avenue to Lake Avenue during the year. The new quarters occupied contain 570 square feet of well-lighted space and are provided with water,

electricity, compressed air and steam. The space is divided into two rooms of about equal size and it has thus been possible to install the hood and furnace in one room and the balances and reagents in another. The hood has been provided with a sink and a 10-inch draft pipe. A Weisnegg furnace 7 inches by 4 inches by 3 inches provided with gas and compressed air furnishes sufficient heat for ordinary ignitions and minor assays. Draft for this purpose is provided by a 3-inch pipe surrounded by an 8-inch pipe, open at both ends for prevention of overheating. A blowpipe desk and small still for distilling water are installed in the same room with the hood and furnace. With the facilities afforded some quantitative analyses have been made during the year and many qualitative ones. The quantitative analyses included one of a Chinese iron, two of Chinese glazes and a pottery body. In addition to chemical work it has been found necessary owing to lack of space in the Museum building to carry on some mechanical work in the laboratory. The two blast furnace models were built there and some of the work of preparing the petroleum collection performed. In the Department of Zoology a small number of storage cans have been installed. Space for this purpose is becoming limited and incoming collections are cared for with increasing difficulty. Arrangements are being made for storage of skulls of large mammals in discarded exhibition cases and in various ways. Temporary and more or less inconvenient methods are necessary to maintain the collection so that valuable material may be safe and reasonably accessible. The skin dresser has been occupied during the year with skins requiring special preparatory to mounting, among which were certain large skins, such as rhinoceros and hippopotamus, which it had not heretofore been possible to remove from pickle. Four large habitat groups of American birds produced under the Field-Sprague Ornithology Fund have been completed and successfully installed in a handsome quadripartite case of the style previously used for such exhibits. The principal birds shown are (1) the Northern Loon, (2) the Great Blue Heron, (3) the Whooping and Sandhill Cranes, and (4) the Golden Eagle. These groups are, without doubt, better in workmanship and reproduction of natural conditions of environment than any previously produced. They are all of the highest class, but the group of whooping cranes is especially interesting, not only from the beauty of its accessories, but also on account of the rarity of the birds which are practically on the verge of extinction. In the Golden Eagle group the nest contains the eggs of the species, but they will ultimately be replaced by a pair of "nestling" birds. Another large bird group is well toward completion showing a number of interesting pelagic species which nest on Laysan

Island, in the mid-Pacific Ocean. The material for this group was obtained through co-operation with the University of Iowa and it will include a striking background painted from original sketches by artist Corwin who accompanied the Iowa expedition. In addition to work on habitat groups, the systematic collection of mounted birds in Hall 26 was installed in new cases and entirely relabeled. Two important mammal groups, both with painted backgrounds, have been completed during the year. These are the group of Sonoran Grizzly Bears and the Beaver group. The scene represented in the Beaver group is that of woodland and lake in the practically primeval forest on the estate of Mr. Cyrus H. McCormick (through whose courtesy the specimens were secured) near Champion, Michigan, where the material for the group was obtained. A group of African Buffalo consisting of five individuals is being prepared for the Museum by Mr. Carel E. Akeley. Work on a group of American Bison has commenced and other groups of birds and mammals have been planned. Owing to the large amount of time spent on group work, additions to the systematic series of birds and mammals have been confined to some 30 birds and three mammals. Among the latter is an interesting marsupial, the Banded Australian Anteater *Myrmecobius fasciatus*. Mr. Heim, the Museum taxidermist in California, has mounted during the year 128 fishes. He also reports having in preparation 43 additional specimens. Taxidermist Heim has also mounted a crab and crawfish group for a case 6' x 2½' and has secured the necessary accessory material. One shark or sawfish 13 feet in length and several fishes more than 3 feet in length are included in this group. In some cases there are from 6 to 10 examples of one species intended to be used later for groups. The assistant in the Division of Entomology has given considerable time during the year to making life-history groups of insects, three of which have been completed and placed on exhibition. The groups so far completed, as well as those under way, with one exception, represent local forms of the order embracing the butterflies and moths. They are of interest primarily because they illustrate the various stages in the development of an insect having a complete metamorphosis. In the Division of Osteology 560 skulls were cleaned for the Division of Mammalogy; 27 skeletons cleaned for the unmounted collection of comparative osteology; 4 skeletons repaired and remounted; 5 skeletons mounted for the Systematic collection of osteology and 5 skulls cleaned and mounted for the collection of craniology.

PRINTING.—The Printing Office shows unusually good results. It is satisfactory to report that not only has there been an increase in the number of labels printed, and all accumulated copy treated, but the

stage has now been reached where it is possible to keep up with incoming work. During the year the following work has been accomplished:

	Labels.	Other Impressions .
Department of Anthropology	5,645	.....
Department of Botany	1,034	32,135
Department of Geology	5,528	5,350
Department of Zoology	1,068	29,100
General . . . . .	....	77,062
Library . . . . .	....	22,000

PHOTOGRAPHY AND ILLUSTRATION.—The following table gives the result of the operations performed in this important Division:

	Negatives.	Prints.	Lantern slides.	Enlargements.	Negatives developed for field expeditions.	Photomacrophs.	Lumiere autochrome color plates.
Director's Office	1	86	..	..	12	..	..
Department of Anthro- pology	328	4,063	84	..	56	..	..
Department of Botany	93	1,452	175	23	12	5	4
Department of Geology	59	186	43	..	..	..	..
Department of Zoology	115	625	78	..	128	..	..
Distribution . . . . .	..	50	..	..	..	..	..
Gift. . . . .	..	174	21	..	..	..	..
Sale. . . . .	..	92	17	2	..	..	..
Totals	596	6,728	418	25	208	5	4

ATTENDANCE.—The actual attendance for 1912 was approximately 15,000 more than the previous year. It is encouraging also to report a sharp increase in the attendance of school children and students. The following is a gratifying list of the school and university classes (twenty pupils or more) that visited the Museum during the year:

Schools and Locations	Teachers.	Pupils.
Carter Practice — Sixty-first Street and Wabash Avenue	3	43
Addison Normal — Addison, Illinois	1	26
University Elementary — Fifty-ninth Street and Monroe Avenue	3	36
Thornton Township High — Harvey, Illinois	1	45
Thornton Township High — Harvey, Illinois	1	42
Lewis Institute — 1955 West Madison Street	1	32
Paul Revere — Thirteenth Place and Throop Street		40
University Elementary — Fifty-ninth Street and Monroe Street	4	20
West Chicago High — West Chicago, Illinois	1	22
Northern Teachers' Association	101	
University of Chicago — Chicago, Illinois		22
Ray — Fifty-seventh Street and Monroe Avenue	1	21
Northern Teachers' Association	140	
University of Chicago — Chicago, Illinois	2	38

Schools and Locations	Teachers.	Pupils.
Canadian Teachers' Association	42	
Hinsdale — Hinsdale, Illinois	6	20
Parker High — 330 Webster Avenue	1	22
University of Chicago — Chicago, Illinois		31
Parker High — 330 Webster Avenue	1	22
Drummond — Clybourn Place and North Lincoln Street	3	55
Addison Normal — Addison, Illinois	1	26
New Trier High — Winnetka, Illinois	2	54
Lyons Township High — La Grange, Illinois	1	20
Hyland Park — Hyland Park, Illinois	8	28
Chicago Academy of Fine Arts — 6 East Madison Street	1	90
Parker High — 330 Webster Avenue	1	22
Ray — Fifty-seventh Street and Monroe Avenue	2	45
Parker High — 330 Webster Avenue	1	20
University of Chicago — Chicago, Illinois		40
University Elementary — Fifty-ninth Street and Monroe Avenue	3	23
Waller High — Orchard and Center Streets	1	27
McKinley High — W. Adams Street corner Hoyne Avenue	2	45
University of Chicago — Chicago, Illinois		40
Blue Island — Blue Island, Illinois	3	22
Libby Open-Air School	1	20
Girton — Winnetka, Illinois	3	28
Hyde Park High — Fifty-seventh Street and Kimbark Avenue	1	26
University of Chicago — Chicago, Illinois		21
Hyland Park — Hyland Park, Illinois	7	70
Hyde Park High — Fifty-seventh Street and Kimbark Avenue	1	37
Ray — Fifty-seventh Street and Monroe Avenue	2	30
Parker High — 330 Webster Avenue	1	32
Drake — Twenty-sixth Street and Calumet Avenue	1	37
Chase — Point Place and Cornelia Court	1	35
Hyde Park High — Fifty-seventh Street and Kimbark Avenue	2	43
Hyde Park High — Fifty-seventh Street and Kimbark Avenue	1	37
Arthur A. Libby — Fifty-third and Loomis Streets		28
Chicago Academy of Fine Arts — 6 East Madison Street	1	24
University Elementary — Fifty-ninth Street and Monroe Avenue	1	22
Goodrich — Sangamon and Taylor Streets	2	37
University Elementary — Fifty-ninth Street and Monroe Avenue	1	20
University of Chicago — Chicago, Illinois		24
Wendell Phillips High — Thirty-ninth Street and Prairie Avenue	1	20
Carter Practice — Sixty-first Street and Wabash Avenue	2	30
Holden — Thirty-first and Loomis Streets	1	35
McKinley High — W. Adams Street corner Hoyne Avenue	2	30
St. Andrews — 3613 South Wood Street	4	49
Moody Bible Institute — 153 Institute Place		42
Englewood High — Sixty-second Street and Stewart Avenue	2	212
Raymond — Thirty-sixth Place and Wabash Avenue	2	95
University Elementary — Fifty-ninth Street and Monroe Avenue	3	20
Ray — Fifty-seventh Street and Monroe Avenue	2	30
Wendell Phillips High — Thirty-ninth Street and Prairie Avenue		40

Schools and Locations	Teachers.	Pupils.
John Marshall High — Adams Street between Spaulding and Kedzie Avenues	1	20
Blue Island — Blue Island, Illinois	4	25
Wendell Phillips High — Thirty-ninth Street and Prairie Avenue	1	52
Hyde Park High — Fifty-seventh Street and Kimbark Avenue	2	45
University of Chicago — Chicago, Illinois		25
Wilmette — Wilmette, Illinois	2	47
Seglitz Park — Blue Island, Illinois	2	27
Chicago Academy of Fine Arts — 6 East Madison Street	1	75
University of Chicago — Chicago, Illinois		25
East Chicago High — East Chicago, Illinois	2	47
Greenwood — Blue Island, Illinois	3	27
Farragut — Twenty-third Street and Spaulding Avenue	2	22
University of Chicago — Chicago, Illinois		30
Lincoln — Blue Island, Illinois	2	50
Goodrich — Sangamon and Taylor Streets	2	75
Perkins Bass — Sixty-sixth and May Streets	1	44
Willard — Forty-ninth Street and St. Lawrence Avenue	1	32
Goodrich — Sangamon and Taylor Streets	2	85
University of Chicago — Chicago, Illinois		24
Burr — Wabansia and North Ashland Avenues	1	40
St. Brendan — 1417 West Sixty-seventh Street	2	60
Harvey — Harvey, Illinois	3	75
St. John's — 308 West Twenty-fifth Street	1	84
Blue Island — Blue Island, Illinois	5	132
Seward — Forty-sixth Street and Hermitage Avenue	2	32
Seymour — Blue Island, Illinois	3	135
Darwin — Edgewood Avenue and Catalpa Court	2	40
Sawyer Avenue — Blue Island, Illinois	1	35
Wm. H. Ryder — Eighty-ninth Street and Lowe Avenue	1	35
Kenwood — Fiftieth Street and Lake Avenue	1	40
G. M. Pullman — One Hundred and Thirteenth Street and Morse Avenue	2	70
Komensky — Throop and Twentieth Streets	1	25
J. N. Thorpe — Eighty-ninth Street and Superior Avenue	2	45
University of Chicago — Chicago, Illinois		35
West Hammond — West Hammond, Illinois	4	93
St. Charles — St. Charles, Illinois	5	30
University of Chicago — Chicago, Illinois		32
University of Chicago — Chicago, Illinois		22
University of Chicago — Chicago, Illinois		25
Holden Vacation — Thirty-first and Loomis Streets	35	412
Greene Vacation — Thirty-sixth and Paulina Streets	11	180
Jefferson Park Summer — Elburn Avenue and Laffin Street	5	54
McCormick Vacation — Twenty-seventh Street and Sawyer Avenue	26	591
University of Chicago — Chicago, Illinois		24
University of Chicago — Chicago, Illinois		25
Moody Bible Institute — 153 Institute Place		25

Schools and Locations	Teachers.	Pupils.
University of Chicago — Chicago, Illinois		29
Harrison Vacation — Twenty-third Street and Princeton Avenue	13	216
Libby Open Air — Loomis and Fifty-third Streets	5	35
Forrestville — Forty-fifth Street and St. Lawrence Avenue	3	122
Washington — North Morgan Street and Grand Avenue	3	59
Wendell Phillips High — Thirty-ninth Street and Prairie Avenue		25
Kenwood — Fiftieth Street and Lake Avenue	3	21
Bethany Bible Institute — 3435 West Van Buren Street.		28
Lake High — West Forty-seventh Place and Union Avenue.	1	45
Lewis Institute — 1955 West Madison Street	1	24
University Elementary — Fifty-ninth Street and Monroe Avenue	1	21
Bethany Bible Institute — 3435 West Van Buren Street.		20
Chicago Evangelistic Institute — 1754 Washington Boulevard	3	38
University Elementary — Fifty-ninth Street and Monroe Avenue	1	28
Chicago Latin — 18 East Division Street	4	25
Harper — Sixty-fifth and Wood Streets.	2	87
Evanston — Evanston, Illinois	1	25
Gladstone — Robey Street and Washburne Avenue	4	102
Crane Technical High — 2246 West Van Buren Street	1	21
University of Chicago — Chicago, Illinois	1	41
Lincoln — Kemper Place and Hamilton Court	4	50
University of Chicago — Chicago, Illinois	1	21
University of Chicago — Chicago, Illinois	1	41
McKinley High — W. Adams Street corner Hoyne Avenue	1	25

Herewith are also submitted financial statement, list of accessions, names of members, etc.

FREDERICK J. V. SKIFF, *Director*.



AURANTIACEAE — CITRUS FAMILY.

LIBRARY
UNIVERSITY OF ILLINOIS
URBANA

FINANCIAL STATEMENT

RECEIPTS AND DISBURSEMENTS

January 1, 1912 to December 31, 1912

RECEIPTS

Cash in Treasurer's hands, December 31, 1911	\$30,218.78
Petty Cash on hand, December 31, 1911	739.95
Dues of Annual Members	1,310.00
Life Members	2,500.00
Life Memberships Investment Income	179.24
Admissions and Check Rooms	5,933.15
Sale of Guides	260.50
South Park Commissioners	15,000.00
Interest on Investments and Bank Balances	34,602.80
Field Endowment Income	136,500.00
Field Endowment Sinking Fund	500.00
Field Endowment Sinking Fund Income	100.00
Sundry Receipts and Refunds	2,159.33
Sundry Sales	53.72
Joseph N. Field South Pacific Islands Fund Investment Income	86.11
Joseph N. Field South Pacific Islands Fund Investment retired	5,000.00
Field-Sprague Ornithology Fund	600.00
Stanley McCormick Hopi Fund	1,236.98
Huntington W. Jackson Library Fund	40.00
Mrs. T. B. Blackstone Fund	3,165.19
R. F. Cummings Philippine Fund	688.32
Special Donation — Tuesday Art and Travel Club	600.00
New Exhibition Cases Fund Investments Income	6,426.61
New Exhibition Cases Fund Investment retired	13,500.00
Sale of Real Estate	5,000.00
General Fund — Mortgages retired	13,500.00
	<hr/>
	\$279,900.68

DISBURSEMENTS

Salaries		\$96,939.42
Guard Service		13,283.23
Janitor Service		7,377.14
Fire Protection		4,071.00
Heat and Light —		
Wages	\$4,009.66	
Fuel	7,369.61	
Supplies, Gas, etc.	2,397.74	13,777.01
Repairs and Alterations —		
Wages of Carpenters, Painters, Roofers, etc.	\$10,742.02	
Material used — paints, oils, glass, lumber, plaster, etc.	1,109.56	11,851.58
Furniture and Fixtures		15,059.54
The Library —		
Books and Periodicals	\$2,195.09	
Binding	810.38	
Sundries	46.30	3,051.77
Sections of Printing and Photography		1,547.86
Collections, etc., purchased		28,702.63
Departmental Expenses		5,912.04
Expeditions		5,353.04
Publications		4,913.95
General Expense —		
Freight, Expressage and Teaming	\$4,578.43	
Stationery, Postage, Telephone, Engraving	1,419.01	
Northern Trust Company, Custodian Fee	357.63	
Lecture Course Expenses	765.10	
Sundries	2,105.58	9,225.75
Field-Sprague Ornithology Fund		515.60
Joseph N. Field South Pacific Islands Fund		5,005.10
R. F. Cummings Philippine Fund		805.91
Stanley McCormick Hopi Fund		1,867.28
Mrs. T. B. Blackstone Fund		2,865.19
Homer E. Sargent Fund		12.19
New Exhibition Cases Fund		5,881.01
		\$238,018.24
In Treasurer's hands, December 31, 1912	\$8,342.10	
Petty Cash on hand, December 31, 1912	739.95	
Byron L. Smith, Treasurer, Endowment Sinking Fund	500.00	
New Exhibition Cases Fund Investments	12,000.00	
New Exhibition Cases Fund Suspense	1,829.24	
N. W. Harris Public School Extension Fund Suspense	171.15	
Life Memberships Investment	5,500.00	
General Fund Investments	12,800.00	41,882.44
		\$279,900.68

ATTENDANCE AND RECEIPTS FROM JANUARY 1 TO DECEMBER 31, 1912

ATTENDANCE.

Paid Attendance —		
Adults	20,599	
Children	2,289	22,888
Free Admission on Pay Days —		
School Children	6,050	
Students	4,018	
Teachers	1,010	
Members: Corporate	25	
Annual	57	
Life	7	
Officers' Families	77	
Special	123	
Press	19	11,386
Admissions on Free Days —		
Saturdays	41,796	
Sundays	138,443	180,239
Total Attendance		214,513
Highest Attendance on any one day (August 4, 1912) . .		6,757
Highest Paid Attendance on any one day (September 2, 1912)		585
Average Daily Admissions (364 days)		589
Average Paid Admissions (260 days)		88
RECEIPTS.		
Guides sold — 1,042 at 25 cents each	\$ 260.50	
Articles checked — 11,090 at 5 cents each	554.50	
Admissions	5,378.65	
		\$6,193.65

ACCESSIONS

DEPARTMENT OF ANTHROPOLOGY.

(ACCESSIONS ARE BY GIFT UNLESS OTHERWISE DESIGNATED.)

- AYER, E. E., Chicago.
Ethnological material — North America.
- BAKER, C. H., JR., Chicago.
Ethnological material — Japan and South Pacific Islands.
- BLACKSTONE, MRS. T. B., Chicago.
Ethnological material — Tibet.
Ancient Chinese pottery — Honan Province, China.
- DE YOUNG, M. H., San Francisco, California.
Lamanistic drum of portions of two skulls — Tibet.
- ETHERIDGE, R., Melbourne, Australia.
Ethnological material — Australia (exchange).
- FIELD, JOSEPH N., Manchester, England. South Pacific Islands Fund.
General ethnological collection — Melanesia (Collected by A. B. Lewis).
- FIELD MUSEUM OF NATURAL HISTORY.
Purchases:
Silk tapestry with figures representing Buddhist priests and acolytes — China.
Collection of Etruscan jars, bronze vase, Etruscan sarcophagus and wine jars — Italy.
Etruscan jewelry — Rome, Italy.
Pike-like tool of stone — Michigan.
Buffalo robe with painted ornamentations on one side.
Ingot of Chinese steel of Ming Dynasty — China.
Large grooved axe of hematite — Keokuk County, Iowa.
Crown of tortoise shell, human bones, etc., ear ornaments, miniature god in stone, tubular stone bead — Marquesas Islands.
Album in red lacquered binding and two vases of iron — China and Japan.
- HILL, MRS. D. J.
Gold bracelet — Northwest coast, United States.
- LAGERQUIST, REV. A. W., Chicago.
Four Chinese documents and two Cash bills — China.
- SARGENT, HOMER E., Chicago.
Ethnological specimens — British Columbia.
- SKINNER, GARDNER M., Royal Centre, Indiana.
Axes, hammers, pestles, celts, stone balls, etc. — Ohio and Indiana.
- STAFFORD, REV. S. M., Oklahoma City, Oklahoma.
Clay mold of miniature human face — Mexico.

TUESDAY ART AND TRAVEL CLUB OF CHICAGO.

Two Chinese scroll paintings — Peking, China.

WOLEY, DR. H. P., Chicago.

Two arrow heads, two pipes and two celts.

DEPARTMENT OF BOTANY.

(ACCESSIONS ARE BY GIFT UNLESS OTHERWISE DESIGNATED.)

ARNOLD ARBORETUM, Jamaica Plain, Massachusetts.

134 herbarium specimens — United States and Canada (exchange).

ARTHUR, J. C., Lafayette, Indiana.

1 herbarium specimen — Nordeshof, North Dakota.

BEARDSLEY, WALTER H., Chicago.

1 photograph of *Aristolochia grandiflora* — Chicago.

BOTANIC GARDENS, Sebpur, Calcutta, India.

1 specimen fruits of *Melocanna bambusoides Trin.* — India.

1 specimen seeds of Bamboo — India.

BOTANIC GARDENS, Sydney, Australia.

102 herbarium specimens — Australia (exchange).

BROOKS, F. E., French Creek, West Virginia.

2 herbarium specimens — West Virginia.

BRUMBACK, MISS FLORENCE M., Waukegan, Illinois.

herbarium specimens — Colorado.

CAMPBELL, ALEXANDER & CO., Shanghai, China.

29 specimens China Teas — China.

CHAMBERLAIN, C. J., Chicago.

1 specimen fruit *Encephalartos Altensteinii* in glycerin — South Africa.

4 herbarium specimens — Africa and Australia.

CHANEY, RALPH W., Chicago.

300 herbarium specimens — Michigan.

43 herbarium and economic specimens — Colorado.

COULTER, J. M., Chicago.

3 herbarium specimens — Mexico and New Mexico.

2 photographs of *Quercus Alexanderi* — Michigan.

CROSBY, MISS GRACE, Chicago.

1 herbarium specimen — Illinois.

DAHLGREN, B. E., Chicago.

1 specimen *Fatsia papyrifera* — Postal Cards — Chicago Market.

DEANE, WALTER, Cambridge, Massachusetts.

22 herbarium specimens — United States.

DORME, E. V. G., Brampton, Canada.

1 specimen leaves of *Leucadendron argenteum* — St. Helena Island.

EIKENBERRY, WILLIAM LEWIS, Chicago.

88 herbarium specimens — Idaho, Wyoming and Yellowstone National Park.

FIELD MUSEUM OF NATURAL HISTORY.

Collected by C. F. Millspaugh:

29 herbarium specimens.

Collected by O. E. Lansing, Jr.:

63 herbarium specimens — Golf, Illinois.

12 herbarium specimens — Gary, Indiana.

415 herbarium specimens — Illinois.

42 herbarium specimens — Indiana.

3 herbarium specimens — Indiana.

Ginkgo biloba — branch, and *Diospyros Virginiana* — fruiting branch — Indiana.

Collected by C. F. Millspaugh:

63 herbarium specimens — Arizona and New Mexico.

13 herbarium specimens — California.

32 herbarium specimens — Oahu, Sandwich Islands.

15 herbarium specimens — Kamakura and Tokyo, Japan.

72 herbarium specimens — Japan.

8 economic specimens — Kyoto, Japan.

15 economic specimens — Japan, China and Sandwich Islands.

3 economic specimens — Philippine Islands.

4 economic specimens — Philippine Islands.

44 herbarium specimens — China and Japan.

2 economic specimens — Straits Settlements.

2 specimens fruits and seeds of *Hevea* — Straits Settlements.

3 economic specimens — India and Singapore.

57 herbarium specimens — Philippine Islands.

52 herbarium specimens — India and Java.

1 specimen old amber beads — Bremen Market.

1 economic specimen — Sicily.

220 economic specimens — Java.

56 herbarium and economic specimens and water color studies — Java and Straits Settlements.

53 herbarium specimens — Ceylon.

68 economic specimens — Ceylon, India, Japan and Java.

Collected by H. H. Smith:

24 herbarium and economic specimens — Washington.

herbarium specimens and dry fruits.

herbarium specimens.

16 specimens tree trunks — California.

economic specimens — California.

herbarium and economic specimens — California.

herbarium and economic specimens and dry fruits — California.

14 economic specimens — California.

3 economic specimens — California.

1 herbarium specimen — California.

2 specimens *Pinus monophylla* — gum, and *Juglans California* — nuts — California and Nevada.

Purchases:

20 economic specimens — Japan.

3 Bikaner Lacquer Vases — India.

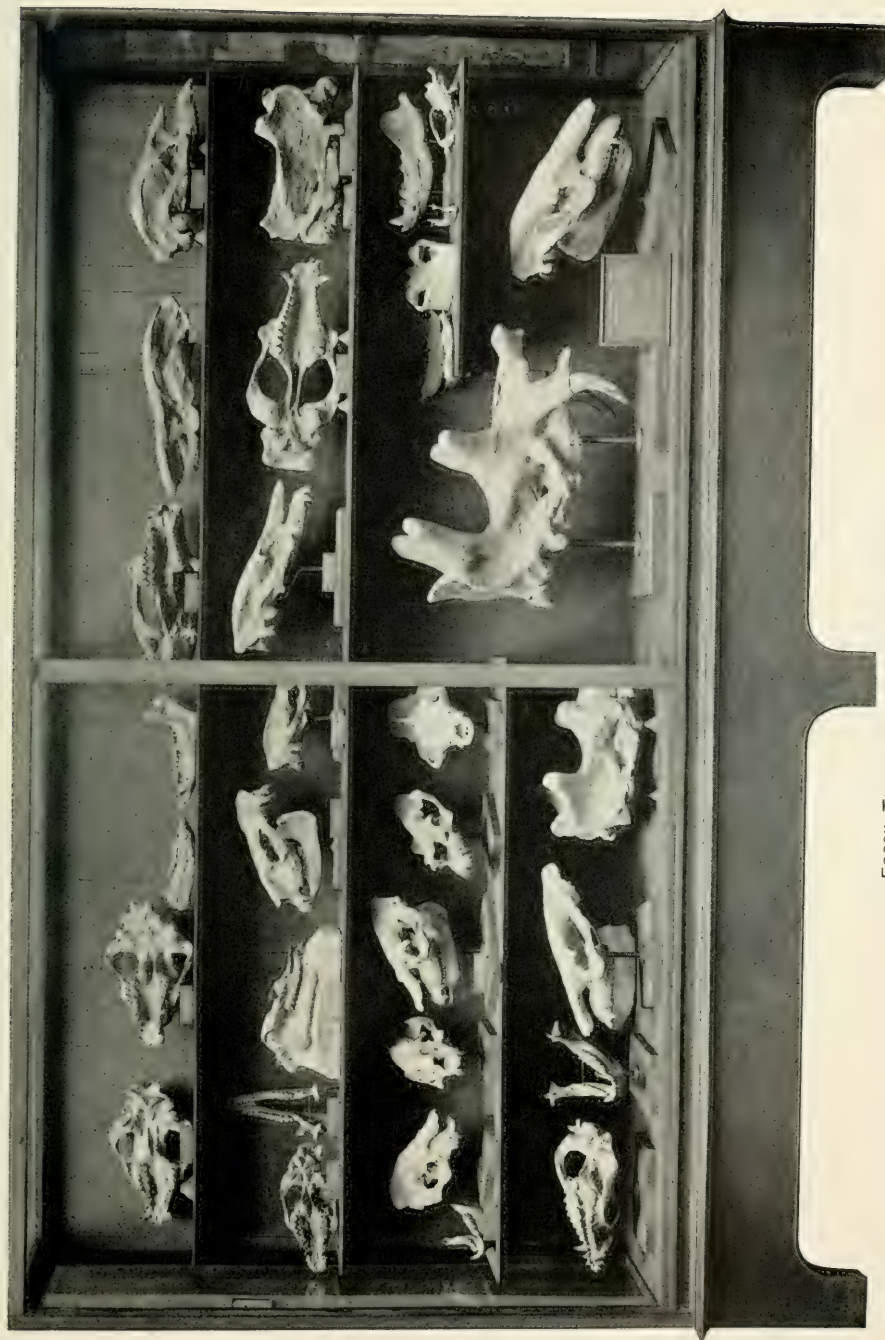
herbarium specimens.

213 herbarium and economic specimens — Tobago, West Indies.

22 economic specimens — Philippine Islands.

112 herbarium specimens — Illinois and Texas.

1 citron



FOSSIL TITANOTHERES FROM UTAH EOCENE.
Collected by Museum Expedition of 1910.

LIBRARY
UNIVERSITY OF ILLINOIS
URBANA

- 867 herbarium specimens — Michigan.
- 42 specimens — steps in lacquer process — Japan.
- 2 specimens — Oil of Lemon and Citric Acid — Sicily.
herbarium of the late J. H. Schuette.
- 252 herbarium specimens — Society Islands and New Zealand.
- 451 herbarium specimens — Mexico.
- 839 herbarium specimens — Idaho.
- 236 herbarium specimens — Santo Domingo.
- 260 herbarium specimens — Philippine Islands.
- 102 herbarium specimens — Bolivia.
- 103 herbarium specimens — Bolivia.

Modeled by B. E. Dahlgren:

- 1 fruiting cluster of *Arisaema triphyllum* L.— Illinois.
fruiting branch and enlarged flower of *Achras Sapota* and fruit of
Chrysophyllum Cainito — Jamaica.
- 1 *Aloe vera*, whole plant — Jamaica.
- 6 models, *Pyrus Malus*, *Psidium Guajava*, *Lycoperdon giganteum* (whole
and section), *Coprinus comatus* and *Asclepias incarnata*.
- 1 *Citrus nobilis*, Tangierine.
- 13 models of Citrus fruits.
- 2 models, *Thalia dealbata*, enlarged flower, and *Tillandsia recurvata*,
group — Jamaica.
- 3 models, *Chrysophyllum Cainito*, sections— Jamaica.
- 6 models, *Marchantia polymorpha* and *Equisetum arvense*.
- 1 model of Sea Grape.
- 2 models, *Anona squamosa* — Jamaica, and *Melocanna bambusoides* —
India.
- 1 model of *Coffea Arabica* enlarged flower — Jamaica.
- 1 model of *Coffea Arabica* — branch.
- 2 models, *Equisetum arvense* and *Coffea Arabica*.
- 1 model, *Lilium umbellatum* Pursh.
- 1 model of *Psidium Guajava* — branch.

GAÑO, MISS LAURA, Chicago.

- 1 herbarium specimen — Florida.

GOVERNMENT MUSEUM, Madras, India.

- 2 herbarium and 5 economic specimens — India.

GRAY HERBARIUM, Cambridge, Massachusetts.

- 1 herbarium specimen — Cuba.
- 14 fragments of types and authentic specimens (exchange).
- 387 herbarium specimens (exchange).

GREENE, E. L., Washington, D. C.

- 12 herbarium specimens — West Virginia.

GREENMAN, J. M., Chicago.

- 2 Plant Illustrations.
- 1 herbarium specimen — Michigan.
- 22 Plant Descriptions.

- 1 herbarium specimen — Oklahoma.

- 1 engraving of *Newcastilia apodistra* F. M.— Australia.

HAUPT, ARTHUR W., Chicago.

- 15 herbarium specimens — North Dakota, North Carolina and Oregon.

- HEATH, J. R., Carpinteria, California.
 1 fruiting branch, *Citrus* species — California.
- HILL, ELLSWORTH J., Chicago.
 1 herbarium specimen — Indiana.
- HYNES, J. A., Chicago.
 1 *Apium graveolens*.
- INDIAN MUSEUM, Calcutta, India.
 327 economic specimens — India (exchange).
- INGRAHAM, N. B., Whittier, California.
 13 Eucalyptus Oils — California.
- JONES, R. H., Chicago.
 1 talking machine needle.
- K. B. BOTANISCHEN MUSEUMS, Munich, Bavaria. Germany.
 991 herbarium specimens — Bavaria, Germany (exchange).
- KRASOWSKI, MICHAEL, Chicago.
 1 fruit of "Locka Bean" — Central Africa.
- LANSING, O. E., JR., Chicago.
 3 fungi — Illinois and Michigan.
 164 herbarium specimens — Richland County, Wisconsin.
- LIMA, J. A., Santiago de las Vegas, Cuba.
 2 herbarium specimens — Cuba.
- LOEB, J. A. Chicago.
 1 herbarium specimen — Chicago.
- MACKENSEN, B., San Antonio, Texas.
 1 photograph of *Opuntia leptocarpa* Mackensen.
 2 herbarium specimens — Texas.
 4 specimens of *Opuntia* — Texas.
- MILLSPAUGH, MRS. C. F., Chicago.
 1 specimen hand made arrowroot starch—Harbor Springs, Michigan.
 1 herbarium specimen — Wisconsin.
- MILLSPAUGH, C. F., Chicago.
 3 herbarium specimens — Chicago.
 204 herbarium specimens — Wisconsin.
- NEW YORK BOTANICAL GARDEN, New York.
 2 herbarium specimens — Rocky Mountains and Jamaica.
 1 photograph of type of *Andrachne Brittonii* Urban.
 807 herbarium specimens (exchange).
 4 herbarium specimens — Louisiana.
 3 herbarium specimens — Cuba.
 12 herbarium specimens — Bahamas (exchange).
 562 herbarium specimens — West Indies (exchange).
 1 herbarium specimen — Bermuda (exchange).
 11 herbarium specimens — Jamaica (exchange).
- PACIFIC COAST KELP MULCH COMPANY, Los Angeles, California.
 9 kelp products — California.
- PARISH, S. B., San Bernardino, California.
 2 herbarium specimens — Southern California.
 9 herbarium specimens — Arizona and California.
- RETON, M. C., San Diego, California.
 3 specimens kelp basket material and basket — California.

- ROTHROCK, J. T., West Chester, Pennsylvania.
 156 mosses — United States and Europe.
- ROYAL BOTANIC GARDENS, Peradeniya, Ceylon.
 26 economic and herbarium specimens — Ceylon.
- SCHUETTE, MISS CLARA, Green Bay, Wisconsin.
 Portrait of the late J. H. Schuette.
- SELM, ARTHUR W., Kankakee, Illinois.
 1 herbarium specimen — Kankakee, Illinois.
- SESSIONS, MISS KATE O., San Diego, California.
 1 wood specimen — California.
- SHELDON, JOHN L., Morgantown, West Virginia.
 11 herbarium specimens — West Virginia.
- SHERFF, EARL E., Chicago.
 33 herbarium specimens — Illinois, Arizona, Michigan and Indiana.
 1 herbarium specimen — Iowa.
 1 herbarium specimen — Illinois.
 2 herbarium specimens — Arizona and Illinois.
 5 herbarium specimens — Illinois.
- SMITH, ERNEST C., Chicago.
 1 herbarium specimen — Illinois.
 9 herbarium specimens — Illinois.
- STEARNS, ELMER, Chihuahua, Mexico.
 2 herbarium specimens — New Mexico.
- TOWNSEND, C. H. T., Piura, Peru.
 2 herbarium specimens — Peru.
 51 herbarium specimens — Peru.
- TRELEASE, WILLIAM, St. Louis, Missouri.
 12 herbarium specimens — Arizona.
- UNITED STATES DEPARTMENT OF AGRICULTURE, Washington, D. C.
 4 oleoresins — California.
 160 herbarium specimens — Arizona, Colorado, Mexico, New Mexico and Texas (exchange).
 6 herbarium specimens — Turkestan (exchange).
- UNITED STATES NATIONAL MUSEUM, Washington, D. C.
 272 herbarium specimens — (exchange).
 434 herbarium specimens — (exchange).
 1 herbarium specimen — San Salvador.
 57 herbarium specimens — North America and Europe (exchange).
- UNIVERSITY OF CALIFORNIA, Berkeley, California.
 125 herbarium specimens — California.
- UNIVERSITY OF NEVADA, Reno, Nevada.
 4 herbarium specimens — Nevada.

DEPARTMENT OF GEOLOGY.

(ACCESSIONS ARE BY GIFT UNLESS OTHERWISE DESIGNATED).

- BARTON, S. W., Chicago.
 19 specimens thomsonite, chlorastrolite and chalcedony — Isle Royale, Lake Superior (loan).

BECKER, A. G., Clermont, Iowa.

138 specimens invertebrate fossils — Clermont, Iowa.

BÖHM, JULIUS, Vienna, Austria.

3 specimens meteorites (exchange).

DE MAUROY, M., Wassy, France.

7 specimens Kermichel meteorite, aragonite, amblygonite and celestite — France (exchange).

DORSEY, GEORGE A., Chicago.

3 specimens ruby crystal and moonstone — Mogouk. Burma.

EMMERT, H. L., Chicago.

50 garnet crystals — Blairmore, Alberta, Canada.

FARRINGTON, O. C., Chicago.

1 specimen glass sand — Utica, Illinois.

FIELD MUSEUM OF NATURAL HISTORY.

Collected by O. C. Farrington:

5 specimens eruptive rocks — Caliente, Nevada.

Collected by E. S. Riggs:

2 specimens zinc ore — Carthage, Missouri.

Collected by A. W. Slocum:

920 specimens invertebrate fossils — Fayette County, Iowa.

Purchases:

Ward-Coonley collection of meteorites.

1 section of Hermitage Plains meteorite — Hermitage Plains, Australia.

1 quartz flask.

1 skull of *Dolichorhinus* — Utah.

1 meteorite — Reading, Kansas.

1 section of Amalia meteorite — Amalia, South Africa.

236 invertebrate fossils and minerals.

1 specimen millerite — Keokuk, Iowa.

1 gold nugget — Klondike, Alaska.

60 specimens fossil leaves — Mazon Creek, Illinois.

1 section Kingston meteorite — Kingston, New Mexico.

FOOTE MINERAL COMPANY, Philadelphia, Pennsylvania.

4 specimens minerals (exchange).

38 specimens minerals (exchange).

1 section of Kilbourn meteorite — Kilbourn, Wisconsin.

1 cast of Kingston meteorite — Kingston, New Mexico.

202 individuals Holbrook meteorite — Holbrook, Arizona (exchange).

GOODSELL, B. W., Chicago.

1 specimen hematite — Lake Superior.

GUNDLACH, E. T., Chicago.

1 part of femur of megatherium — Andes of Peru, South America.

KENKEL, LOUIS V., Seattle, Washington.

49 specimens ores and minerals — Alaska.

LILJEBLAD, EMIL, Chicago.

1 specimen halotrichite — Sherrard, Illinois.

MC CAMMON, E., Oroville, Washington.

1 specimen weathered concretion — Washington.

MC CREA, W. S., Chicago.

1 specimen emerald in matrix — Colombia, South America.

MARSH, C. H., Marshfield, Oregon.

11 specimens mineral wax, agate, petrified wood and obsidian — Oregon.

MASON, THOMAS, Chicago.

5 specimens fossil plants — Luke Creek, West Virginia.

MILLSPAUGH, C. F., Chicago.

1 specimen flexible sandstone — Futehpur, Sikri, India.

MUIR, JOHN R., Chicago.

14 specimens rocks and ores — Tibet.

NORTON COMPANY, Worcester, Massachusetts.

11 specimens alundum and products — Niagara Falls, New York.

THURSTON, F. A., Chicago.

1 specimen cyanite — Shawanaga, Ontario, Canada.

SCHROTT, FRED, Salt Lake City, Utah.

2 specimens native gold and liebethenite — California and Nevada.

SKINNER, GARDNER M., Royal Center, Indiana.

30 specimens fossils, concretions and obsidian.

UNITED STATES GEOLOGICAL SURVEY, Washington, D. C.

228 specimens crude petroleum—United States.

WINSTON, CHARLES, Chicago.

340 specimens fossils, rocks and minerals.

WOLEY, H. P., Chicago.

205 specimens invertebrate fossils, minerals, lavas, etc.

ZOLLNER, PAUL, Plainfield, Ohio.

22 specimens concretions — Coshocton County, Ohio.

DEPARTMENT OF ZOÖLOGY.

(ACCESSIONS ARE BY GIFT UNLESS OTHERWISE DESIGNATED.)

ANDERSON, J. A., Chicago.

1 saw of Saw-fish and 1 back of Armadillo.

BEER, EMIL, Chicago.

14 moths and butterflies — Pennsylvania, Northern Indiana and Northern Illinois.

CALVERT, P. P., and McLACHLAN, ROBERT.

22 dragonflies — Borneo.

CARPENTER, C. H., Chicago.

1 butterfly — Edge Wood Grove, Miami, Florida.

CORY, MRS. C. B., Chicago.

14 beetles, bugs, etc.— Grand Beach, Michigan.

DITZEL, H. F., Chicago,

1 dragonfly — Chicago.

DYSON, MRS. B. F., Bogota, Illinois.

1 live Redshouldered Hawk.

EVANS GAME FARM, Oak Park, Illinois.

1 skin Canada Goose (domestic).

FIELD MUSEUM OF NATURAL HISTORY.

Collected by Charles Brandler:

8 ducks and teal — Washington County, Wisconsin.

Collected by C. B. Cory:

- 5 Striped Ground Squirrels — Burnside, Illinois.

Collected by W. J. Gerhard:

- 283 dragonflies, roaches, grasshoppers, katydids, bugs, butterflies, moths, beetles, flies, bees, wasps and parasites — Northern Indiana and Northern Illinois.

- 103 dragonflies, grasshoppers, bugs, moths, beetles, flies, bees, wasps and parasites — Southern Michigan, Northern Indiana and Northern Illinois.

Collected by S. E. Meek:

- 7 bugs and beetles — Costa Rica.

Collected by S. E. Meek and S. F. Hildebrand:

- 567 decapods and isopods — Canal Zone and vicinity, Panama.

Collected by W. H. Osgood and M. P. Anderson:

- 83 millipeds, spiders, mites, bird lice, bugs, grasshoppers, butterflies, moths, flies, fleas, beetles, etc. — Peru, South America.

- 3 skeletons of small rodents — Pacasmayo, Peru.

- 214 fishes — Peru.

- 44 lizards, snakes, toads and frogs — Peru.

- 525 mammal and bird skins — Peru.

- 6 Raccoon skins and skulls — Balboa, Canal Zone.

- 127 mammal skins, skulls and skeletons and bird skins and eggs — Northern Peru.

- 280 mammal skins and skulls, bird skins, bats, opossum-like forms and bugs — Peru, South America.

- 344 mammal skins, skulls and skeletons, bird skins and eggs, spiders, grasshoppers, land shells, lizards, fishes and bats — Peru, South America.

Collected by A. B. Wolcott:

- 139 grasshoppers, bugs, butterflies, moths, beetles, flies, bees, wasps and parasites — Northern Indiana and Northern Illinois.

- 164 spiders, stoneflies, grasshoppers, katydids, crickets, bugs, moths, beetles, flies, bees, wasps and parasites — Northern Indiana, Northern Illinois and Missouri.

Mounted by E. N. Gueret:

- 1 skeleton of Toucan — Paramo de Tama, Venezuela.

- 1 skeleton of Australian Anteater — Australia.

- 2 skeletons of chameleon and 1 skeleton of snake — Africa.

- 1 skull of chimpanzee.

Mounted by W. Heim:

- 130 fish — California.

- 27 fish — Key West, Florida.

- 1 Saw-fish — Tampico, Mexico.

- 3 fish and some sea-weeds — Long Beach, California.

Purchases:

- 1 Great Blue Heron — Florida.

- 33 specimens mammals — Jay County, Indiana.

- 1 banded Australian Anteater — Australia.

- 8 bird skins — Tobago, West Indies.

- 1 Brewer's Field-mouse — Muskeget Island, Massachusetts.

- 100 bird skins — British Guiana.
- 8 mounted swans, cranes, etc.
- 2 skeletons of porpoise — Lake Maracaibo, Venezuela.
- 78 birds' eggs and nests.
- 24 birds, Albino or partly Albino—Europe (purchased by Mr. E. E. Ayer).
- 19 bird skins — Antioquia, Colombia, South America.
- 14 butterflies and moths — California, Maryland, New York and Ohio.
- 1 Cackling Goose — Washington County, Wisconsin.

FRIESSER, J., Chicago.

- 1 Golden Eagle — Kansas (exchange).
- 1 skin Hermit Thrush — Chicago.
- 2 skulls buffalo — Fort Pierre, South Dakota.

GAGE, S. H., Ithaca, New York.

- 62 lampreys, larvæ and eggs — Ithaca, New York.

GILLET, CLARENCE R., Chicago.

- 3 fish.

GERHARD, W. J., Chicago.

- 1 skin Fox Sparrow — Chicago.

GUERET, E. N., Chicago.

- 1 skeleton of Wilson Snipe — Lake Calumet, Cook County, Illinois.

HARPHAM, E. L., Evanston, Illinois.

- 1 Whistling Swan.

IOWA STATE UNIVERSITY, Iowa City, Iowa.

- 24 species of birds — Laysan Island.

KWIAT, ALEX., Chicago.

- 5 mosquito, beetle, fly, parasite — Northern Indiana and Northern Illinois.

LILJEBLAD, E., Chicago.

- 1 spider — Bowmanville, Illinois.

LINCOLN PARK COMMISSIONERS, Lincoln Park, Chicago.

- 1 chimpanzee.

LOEB, J. A., Chicago.

- 35 bird skins — Central or South America.

McDONALD, MRS. H. F., Chicago.

- 1 mounted Sail-fish.

MAIN, W. W., Sinamox, Oregon.

- 2 walking-sticks — Sinamox, Oregon.

MITCHELL, FRANCISCO, Yurimaguas, Peru.

- 2 snakes — Yurimaguas, Peru.

PRAY, L. L., Chicago.

- 1 Deer Mouse — Iowa City, Iowa.

SCHUBERT, A., Chicago.

- 1 parasite — Chicago.

SNETHLAGE, E., Para, Brazil.

- 43 mammal skins — Brazil.

STEPHENSON, FRED M.

- 7 White-eared Kob Antelopes and Wild Dogs — Africa.

THOMPSON, STUART L., Toronto, Canada.

- 1 Otter skull.

THOMPSON, S. L., Canton, Ohio.

- 3 wasp, beetle, bug — Canton, Ohio.

UNITED STATES BUREAU OF FISHERIES, Washington, D. C.

252 freshwater shells — United States.

WILLIAMSON, E. B., Bluffton, Indiana.

1 American Coot — Bluffton, Indiana.

WILLIAMSON, E. B., and DEAM, C. C., Bluffton, Indiana.

1 Whistling Swan — Vera Cruz, Wells County, Indiana.

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FIELD MUSEUM OF NATURAL HISTORY.

Made by C. H. Carpenter:

596 negatives Museum specimens, etc., 6728 prints, 418 lantern slides, 25 enlargements, 208 negatives developed for field expeditions, 5 photo-macrographs, 4 Lumiere autochrome color plates.

Made by Edward L. Baker, Lake Forest, Illinois.

— negatives of general views, landscapes, etc. (The negatives were loaned to the Museum and one set of prints donated by Mr. Baker; total number of prints including the set presented, 1088.)

Made by S. E. Meek:

108 negatives, general views, landscapes, etc.— Panama and Costa Rica.

Made by C. F. Millspaugh:

378 negatives, general views, landscapes, etc.

John R. Muir, Kingston, Canada.

— negatives of landscapes, general views, portraits, etc.— Philippines. (The negatives were loaned to the Museum and one set of prints donated by Mr. Muir; total number of prints including the set presented, 554.)

Made by W. H. Osgood:

217 negatives, general views, landscapes, etc.

Made by H. H. Smith:

934 negatives, landscapes general views, portraits of trees, etc.— California.

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Field-Sprague Ornithology Fund.

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TROYES.

(*Triticum sativum*).

A grain of Troyes Wheat, standard of the Troy Grain, Troy weight. In mediaeval times nearly all towns, or seats of commercial activity, had their own standards of weight and measure. In the early part of the fourteenth century the "Pound of Troy" was accepted in England, and many other places, for weighing bread, silk, gold, silver and jewelry; it is now used for gold and silver only. One kernel of the wheat of Troyes equals one grain troy.

ONE OF THE ELEMENTS.
VEGETABLE STANDARDS OF WEIGHT AND MEASURE.

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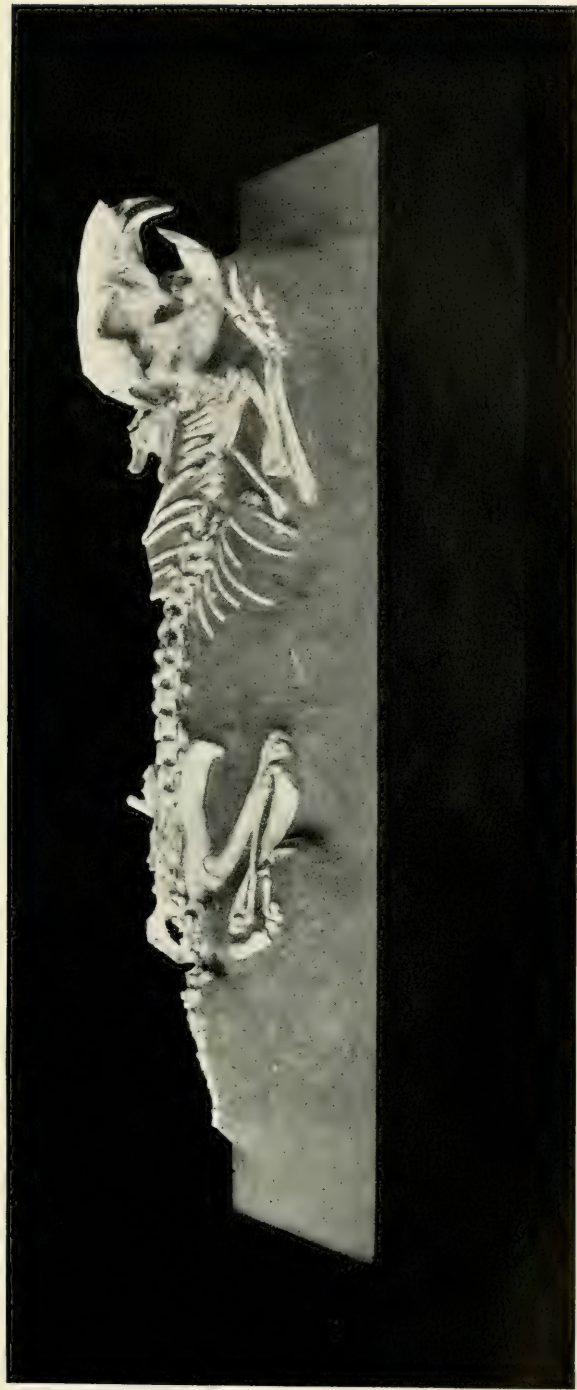
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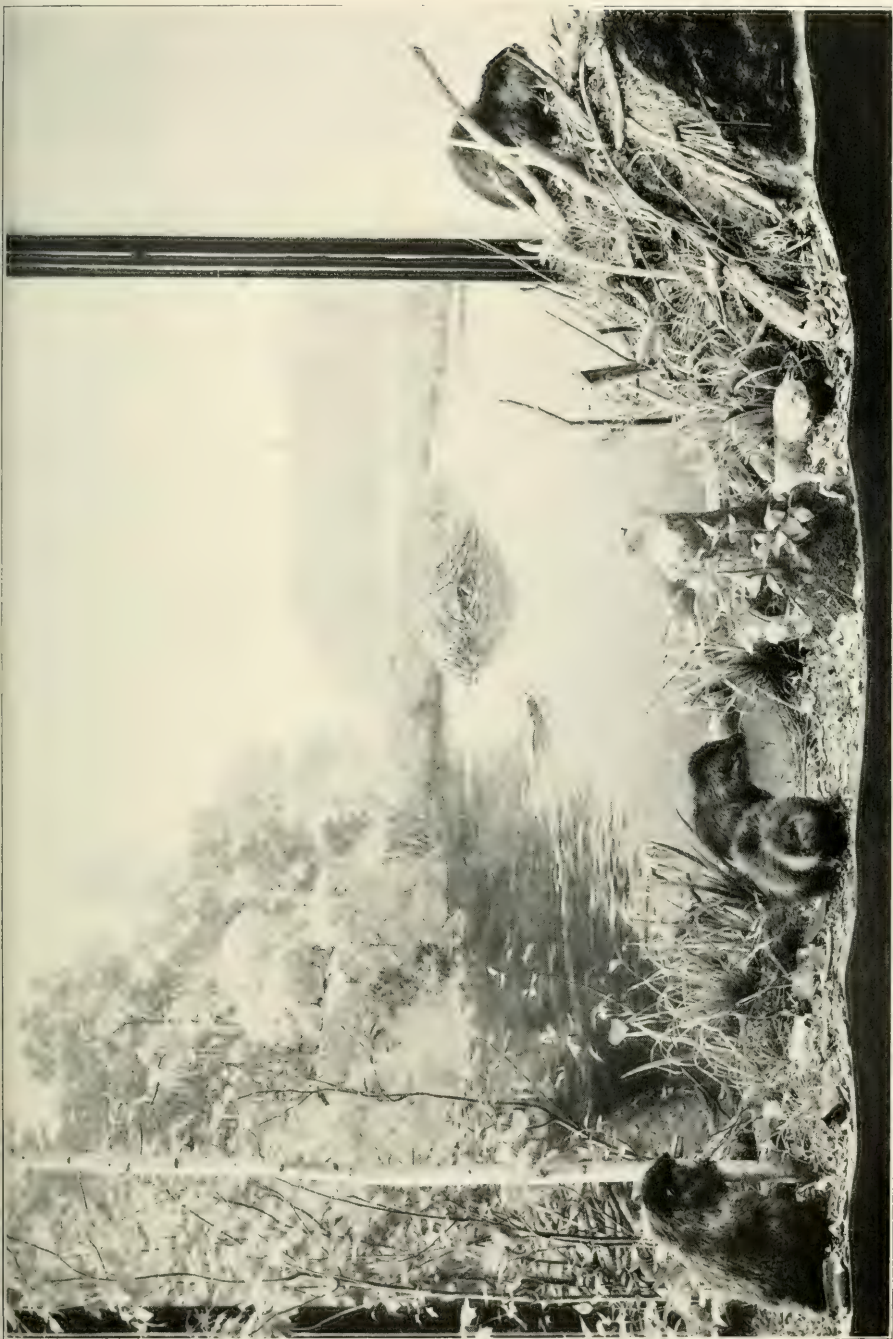
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SOCIETÀ GEOLOGICA ITALIANA, Rome, Italy	1
SOCIETÀ ITALIANA DI ANTROPOLOGIA, Florence, Italy	2
SOCIETÀ ROMANA DI ANTROPOLOGIA, Rome, Italy	2
SOCIETÀ TOSCANA DI SCIENZE NATURALI, Pisa, Italy	2
SOCIETAS PRO FAUNA ET FLORA FENNICA, Helsingfors, Finland	2
SOCIÉTÉ BELGE DE GÉOLOGIE, DE PALÉONTOLOGIE ET D'HYDROLOGIE, Brussels, Belgium	1
SOCIÉTÉ BOTANIQUE DE COPENHAGEN, Copenhagen, Denmark	1
SOCIÉTÉ BOTANIQUE DE FRANCE, Paris, France	1
SOCIÉTÉ D'ÉTUDES DES SCIENCES NATURELLES, Rheims, France	1
SOCIÉTÉ D'ÉTUDES SCIENTIFIQUES, Angers, France	1
SOCIÉTÉ D'HORTICULTURE ET DE BOTANIQUE, Marseilles, France	1
SOCIÉTÉ DES AMIS DE L'UNIVERSITÉ, Clermont, France	1
SOCIÉTÉ DES SCIENCES, Nancy, France	1
SOCIÉTÉ FRIBOURGEOISE DES SCIENCES NATURELLES, Fribourg, Switzerland	1
SOCIÉTÉ GÉOLOGIQUE DU NORD, Lille, France	2
SOCIÉTÉ IMPÉRIALE RUSSE DE GÉOGRAPHIE, St. Petersburg, Russia	12
SOCIÉTÉ NATIONALE D'AGRICULTURE, Angers, France	1
SOCIÉTÉ NATIONALE D'HORTICULTURE DE FRANCE, Paris, France	1
SOCIÉTÉ NEUCHÂTELOISE DE GÉOGRAPHIE, Neuchâtel, Switzerland	1

SOCIÉTÉ OURALIENNE D'AMATEURS DES SCIENCES NATURELLES, Ekaterinburg, Russia	1
SOCIÉTÉ PORTUGAISE DE SCIENCES NATURELLES, Lisbon, Portugal	2
SOCIÉTÉ ROYALE DE BOTANIQUE DE BELGIQUE, Brussels, Belgium	1
SOCIÉTÉ ROYALE ZOOLOGIQUE ET MALACOLOGIQUE DE BELGIQUE, Brussels, Belgium	1
SOCIÉTÉ ZOOLOGIQUE DE FRANCE, Paris, France	3
SOUTH AFRICA. GEOLOGICAL SOCIETY, Johannesburg, South Africa	3
SOUTH AFRICA. MINES DEPARTMENT, Pretoria, South Africa	1
SOUTH AFRICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, Cape Town, South Africa	1
SOUTH AFRICAN DEPARTMENT OF AGRICULTURE, Cape Town, South Africa	1
SOUTH AFRICAN MUSEUM, Cape Town, South Africa	3
SOUTH AFRICAN ROYAL SOCIETY, Cape Town, South Africa	1
SOUTH AUSTRALIA. Department of Agriculture, Adelaide, South Australia	3
SOUTH AUSTRALIA PUBLIC LIBRARY, MUSEUM AND ART GALLERY, Adelaide, South Australia	1
SOUTH CAROLINA AGRICULTURAL EXPERIMENT STATION, Clemson, South Carolina	4
SOUTH DAKOTA AGRICULTURAL EXPERIMENT STATION, Brookings, South Dakota	7
SOUTH LONDON ENTOMOLOGICAL AND NATURAL HISTORY SOCIETY, London, England	1
SOUTHERN CALIFORNIA ACADEMY OF SCIENCES, Los Angeles, California	1
SOUTHERN PACIFIC RAILROAD, San Francisco, California	1
SPEZIA, GIORGIO, Torino, Italy	2
STATEN ISLAND ASSOCIATION OF ARTS AND SCIENCES, New York City	1
STECHERT AND COMPANY, New York City (gift)	1
STETTIN. GESELLSCHAFT FÜR VÖLKER- UND ERDKUNDE, Stettin, Germany	2
STOCKHOLM. K. VITT. HIST. OCH ANTIK. AKADEMIEN, Stockholm, Sweden	3
STOCKHOLM. KUNG. BIBLIOTEKET, Stockholm, Sweden	7
STOCKHOLM. UNIVERSITÉ DE STOCKHOLM. INSTITUT DE BOTANIQUE, Stockholm, Sweden	1
STRASSBURG. KAISER WILHELMS UNIVERSITÄT, Strassburg, Germany	7
STRONG, R. M., Chicago (gift)	5
SWEDEN. FÖRSTLICHE VERSUCHSANSTALT, Stockholm, Sweden	1
SYRACUSE UNIVERSITY, Syracuse, New York	1
TASMANIA. DEPARTMENT OF AGRICULTURE, Hobart, Tasmania	2
TASMANIA. ROYAL SOCIETY, Hobart, Tasmania	2
TAUBENHAUS, J. J.	3
TEILING, EINAR, Stockholm, Sweden	1

TENNESSEE. AGRICULTURAL EXPERIMENT STATION, Knoxville, Tennessee	11
TENNESSEE. GEOLOGICAL SURVEY, Nashville, Tennessee	6
TEXAS AGRICULTURAL EXPERIMENT STATION, College Station, Texas	2
THAXTER, ROLAND, Cambridge	3
THROOP INSTITUTE, Pasadena, California	1
THÜRINGISCHER BOTANISCHER VEREIN, Weimar, Germany	1
TIMBERMAN, THE, Portland, Oregon (gift)	1
TOKYO. ANTHROPOLOGICAL SOCIETY, Tokyo, Japan	2
TOKYO. BOTANICAL SOCIETY, Tokyo, Japan	10
TOKYO. DEUTSCHE GESELLSCHAFT FÜR NATUR- UND VÖLKERKUNDE OSTASIENS, Tokyo, Japan	1
TOKYO. GEOLOGICAL SURVEY, Tokyo, Japan	1
TORINO. MUSEO DI ZOOLOGIA ET ANATOMIA COMPARATA, Turin, Italy	1
TORINO. R. ACCAD. DELLE SCIENZE, Turin, Italy	3
TORONTO UNIVERSITY, Toronto, Canada	4
TRANSSVAAL. DEPARTMENT OF MINES, Pretoria, Transvaal	1
TRANSSVAAL MUSEUM, Pretoria, Transvaal	1
TRELEASE, WILLIAM, St. Louis, Missouri	1
TRING ZOÖLOGICAL MUSEUM, Tring, England	1
TRIVANDRUM MUSEUM, Trivandrum, India	1
TROMSO MUSEUM, Tromsø, Norway	2
TRONDHJEM K. NORSKE VIDENSKABERS SELSKAB, Trondhjem, Norway	1
TÜBINGEN. K. UNIVERSITÄTS-BIBLIOTHEK, Tübingen, Germany	4
TUFTS COLLEGE, Tufts College, Massachusetts	1
TUNIS. CARTHAGE INSTITUTE, Tunis, Africa	1
U. S. GOVERNMENT, Washington, D. C.	642
U. S. INDIAN SCHOOL, Carlisle, Pennsylvania	2
UPSALA. UNIVERSITY, Upsala, Sweden	2
UTAH. STATE HORTICULTURAL COMMISSION, Salt Lake City, Utah	1
VAN DENBURGH, JOHN, San Francisco, California	2
VASSAR BROTHERS INSTITUTE, Poughkeepsie, New York	1
VERMONT BIRD CLUB, Burlington, Vermont	1
VERMONT STATE FORESTER, Burlington, Vermont	1
VERMONT UNIVERSITY, Burlington, Vermont	1
VICTORIA. DEPARTMENT OF AGRICULTURE, Melbourne, Australia	2
VICTORIA FIELD NATURALISTS' CLUB, Melbourne, Australia	1
VICTORIA. PUBLIC LIBRARY, MUSEUMS AND NATIONAL GALLERY, Victoria, Australia	1
VICTORIA. ROYAL SOCIETY, Melbourne, Australia	1
VICTORIA. ROYAL ZOÖLOGICAL AND ACCLIMATIZATION SOCIETY, Melbourne, Australia	1
VICTORIA UNIVERSITY, Toronto, Canada	3
VIENNA. K. K. NATURHISTORISCHES HOFMUSEUM, Vienna, Austria	1
VIENNA. K. K. UNIVERSITÄT, Vienna, Austria	5
VIENNA. K. K. ZOOLOGISCH-BOTANISCHE GESELLSCHAFT, Vienna, Austria	1

VIENNA. NATURWISSENSCHAFTLICHER VEREIN, Vienna, Austria	1
VIRGINIA AGRICULTURAL EXPERIMENT STATION, Blacksburg, Virginia	3
VIRGINIA STATE LIBRARY, Richmond, Virginia	3
VIRGINIA UNIVERSITY, Charlottesville, Virginia	2
WANGANUI PUBLIC MUSEUM, Wanganui, New Zealand	1
WASHINGTON ACADEMY OF SCIENCES, Washington, D. C.	1
WASHINGTON BIOLOGICAL SOCIETY, Washington, D. C.	1
WASHINGTON STATE ART ASSOCIATION, Seattle, Washington (gift)	1
WASHINGTON STATE GEOLOGICAL SURVEY, Olympia, Washington	3
WASHINGTON STATE MUSEUM, Seattle, Washington	1
WASHINGTON UNIVERSITY, St. Louis, Missouri	1
WEIGEL, OSWALD, Leipzig, Germany (gift)	3
WELLCOME CHEMICAL RESEARCH LABORATORIES, London, England	16
WELLINGTON ACCLIMATIZATION SOCIETY, Wellington, New Zealand	1
WESLEYAN UNIVERSITY, Middletown, Connecticut	2
WEST INDIES. IMPERIAL DEPARTMENT OF AGRICULTURE, Barbados, West Indies	2
WEST VIRGINIA AGRICULTURAL EXPERIMENT STATION, Morgantown, West Virginia	2
WEST VIRGINIA GEOLOGICAL SURVEY, Morgantown, West Virginia	7
WEST VIRGINIA STATE BOARD OF AGRICULTURE, Charleston, West Virginia	1
WEST VIRGINIA UNIVERSITY, Morgantown, West Virginia	1
WESTERN AUSTRALIA. GEOLOGICAL SURVEY, Perth, West Australia	1
WESTERN PENNSYLVANIA ENGINEERS' SOCIETY, Pittsburgh, Pennsylvania	2
WIESBADEN. NASSAUISCHER VEREIN FÜR NATURKUNDE, Wiesbaden, Germany	1
WILLE, N., Christiania, Norway	2
WILLIAMS COLLEGE, Williamstown, Massachusetts	2
WILSON ORNITHOLOGICAL CLUB, Oberlin, Ohio	1
WINDSOR-KENFIELD PUBLISHING COMPANY, Chicago	2
WISCONSIN ACADEMY OF SCIENCE, Madison, Wisconsin	1
WISCONSIN ARCHÆOLOGICAL SOCIETY, Madison, Wisconsin	1
WISCONSIN GEOLOGICAL AND NATURAL HISTORY SURVEY, Madison, Wisconsin	2
WISCONSIN HISTORY COMMISSION, Madison, Wisconsin	1
WISCONSIN STATE BOARD OF AGRICULTURE, Madison, Wisconsin	2
WISCONSIN STATE HISTORICAL SOCIETY, Madison, Wisconsin	1
WISCONSIN STATE HORTICULTURAL SOCIETY, Madison, Wisconsin	2
WISCONSIN UNIVERSITY, Madison, Wisconsin	16
WISTAR INSTITUTE OF ANATOMY AND BIOLOGY, Philadelphia, Pennsylvania	9
WOLCOTT, A. B., Chicago (gift)	1
WORCESTER COUNTY HORTICULTURAL SOCIETY, Worcester, Massachusetts	1

WORCESTER FREE PUBLIC LIBRARY, Worcester, Massachusetts . . .	2
WULFING, E. A., Heidelberg, Germany	4
WÜRTEMBERG. VEREIN FÜR VATERLÄNDISCHE NATURKUNDE, Würtemberg, Germany	1
WYOMING AGRICULTURAL EXPERIMENT STATION, Laramie, Wyoming	3
WYOMING HISTORICAL AND GEOLOGICAL SOCIETY, Wilkesbarre, Pennsylvania	1
WYOMING STATE GEOLOGICAL SURVEY, Cheyenne, Wyoming . . .	3
YALE UNIVERSITY, New Haven, Connecticut	11
YOUNG, R. T., University, North Dakota (gift)	1
ZIMANYI, KARL, Budapest, Hungary	2
ZÜRICH. BOTANISCHES MUSEUM DER UNIVERSITÄT, Zürich, Switzerland	3
ZÜRICH. GEOGRAPHISCH-ETHNOGRAPHISCHE GESELLSCHAFT, Zürich, Switzerland	3
ZÜRICH. NATURFORSCHENDE GESELLSCHAFT, Zürich, Switzerland .	2



HABITAT GROUP. AMERICAN BEAVER (*Castor canadensis*).

UNIVERSITY OF ILLINOIS
URBANA

ARTICLES OF INCORPORATION

STATE OF ILLINOIS.

DEPARTMENT OF STATE.

WILLIAM H. HINRICHSEN, *Secretary of State.*

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

Whereas, a Certificate duly signed and acknowledged having been filed in the office of the Secretary of State, on the 16th day of September, A. D. 1893, for the organization of the COLUMBIAN MUSEUM OF CHICAGO, under and in accordance with the provisions of "An Act Concerning Corporations," approved April 18, 1872, and in force July 1, 1872, and all acts amendatory thereof, a copy of which certificate is hereto attached.

Now, therefore, I, William H. Hinrichsen, Secretary of State of the State of Illinois, by virtue of the powers and duties vested in me by law, do hereby certify that the said COLUMBIAN MUSEUM OF CHICAGO is a legally organized Corporation under the laws of this State.

In Testimony Whereof, I hereto set my hand and cause to be affixed the Great Seal of the State. Done at the City of Springfield, this 16th day of September, in the year of our Lord one thousand eight hundred and ninety-three, and of the Independence of the United States the one hundred and eighteenth.

W. H. HINRICHSEN,

[SEAL.]

Secretary of State.

TO HON. WILLIAM H. HINRICHSEN,

SECRETARY OF STATE:

SIR:

We, the undersigned citizens of the United States, propose to form a corporation under an act of the General Assembly of the State of Illinois, entitled "An Act Concerning Corporations," approved April 18, 1872, and all acts amendatory thereof; and that for the purposes of such organization we hereby state as follows, to wit:

1. The name of such corporation is the "COLUMBIAN MUSEUM OF CHICAGO."

2. The object for which it is formed is for the accumulation and dissemination of knowledge, and the preservation and exhibition of objects illustrating Art, Archæology, Science, and History.

3. The management of the aforesaid Museum shall be vested in a Board of FIFTEEN (15) TRUSTEES, five of whom are to be elected every year.

4. The following named persons are hereby selected as the Trustees for the first year of its corporate existence:

Ed. E. Ayer, Charles B. Farwell, George E. Adams, George R. Davis, Charles L. Hutchinson, Daniel H. Burnham, John A. Roche, M. C. Bullock, Emil G. Hirsch, James W. Ellsworth, Allison V. Armour, O. F. Aldis, Edwin Walker, John C. Black, and Frank W. Gunsaulus.

5. The location of the Museum is in the City of Chicago, County of Cook, and State of Illinois.

(Signed),

George E. Adams, C. B. Farwell, Sidney C. Eastman, F. W. Putnam, Robert McMurdy, Andrew Peterson, L. J. Gage, Charles L. Hutchinson, Ebenezer Buckingham, Andrew McNally, Edward E. Ayer, John M. Clark, Herman H. Kohlsaat, George Schneider, Henry H. Getty, William R. Harper, Franklin H. Head, E. G. Keith, J. Irving Pearce, Azel F. Hatch, Henry Wade Rogers, Thomas B. Bryan, L. Z. Leiter, A. C. Bartlett, A. A. Sprague, A. C. McClurg, James W. Scott, George F. Bissell, John R. Walsh, Chas. Fitzsimons, John A. Roche, E. B. McCagg, Owen F. Aldis, Ferdinand W. Peck, James H. Dole, Joseph Stockton, Edward B. Butler, John McConnell, R. A. Waller, H. C. Chatfield-Taylor, A. Crawford, Wm. Sooy Smith, P. S. Peterson, John C. Black, Jno. J. Mitchell, C. F. Gunther, George R. Davis, Stephen A. Forbes, Robert W. Patterson, Jr., M. C. Bullock, Edwin Walker, George M. Pullman, William E. Curtis, James W. Ellsworth, William E. Hale, Wm. T. Baker, Martin A. Ryerson, Huntington W. Jackson, N. B. Ream, Norman Williams, Melville E. Stone, Bryan Lathrop, Eliphalet W. Blatchford, Philip D. Armour.

STATE OF ILLINOIS }
COOK COUNTY } ss.

I, G. R. MITCHELL, a NOTARY PUBLIC in and for said County, do hereby certify that the foregoing petitioners personally appeared before me and acknowledged severally that they signed the foregoing petition as their free and voluntary act for the uses and purposes therein set forth.

Given under my hand and notarial seal this 14th day of September, 1893.

G. R. MITCHELL,
[SEAL.] NOTARY PUBLIC, COOK COUNTY, ILL.

CHANGE OF NAME.

Pursuant to a resolution passed at a meeting of the Corporate members held the 25th day of June, 1894, the name of the COLUMBIAN MUSEUM was changed to FIELD COLUMBIAN MUSEUM. A certificate to this effect was filed June 26, 1894, in the office of the Secretary of State for Illinois.

CHANGE OF NAME.

Pursuant to a resolution passed at a meeting of the Corporate members held the 8th day of November, 1905, the name of the FIELD COLUMBIAN MUSEUM was changed to FIELD MUSEUM OF NATURAL HISTORY. A certificate to this effect was filed November 10, 1905, in the office of the Secretary of State for Illinois.

AMENDED BY-LAWS.

(AUGUST 12, 1912).

ARTICLE I.

MEMBERS.

SECTION 1. Members shall be of five classes, Annual Members, Corporate Members, Life Members, Patrons and Honorary Members.

SEC. 2. Annual Members shall consist of such persons as are selected from time to time by the Board of Trustees at any of its meetings, and who shall pay an annual fee of ten dollars (\$10.00), payable within thirty days after notice of election, and within thirty days after each recurring annual date. The failure of any person to make such initiatory payment and such annual payments within said time shall, at the option of the Board of Trustees, be sufficient grounds for the forfeiture of an annual membership.

This said annual membership shall entitle the member to:

First.—Free admittance for the member and family, to the Museum on any day.

Second.—Ten tickets every year, admitting the bearer to the Museum on pay days.

Third.—A copy of all publications of the Museum when requested.

Fourth.—Invitations to all special exhibits, receptions, lectures, or other functions which may be given at the Museum.

SEC. 3. The Corporate Members shall consist of the persons named in the articles of incorporation, and of such other persons as shall be chosen from time to time by the Board of Trustees at any of its meetings, upon the recommendation of the Executive Committee; provided, that such persons named in the articles of incorporation shall, within ninety days from the adoption of these By-Laws, and persons hereafter chosen as Corporate Members shall, within ninety days of their election, pay into the treasury the sum of twenty dollars (\$20.00) or more. The failure of any person to make such payment within said time, shall, at the option of the Board of Trustees, be ground for forfeiture of his corporate membership. Corporate Members becoming Life Members, Patrons or Honorary Members shall be exempt from dues. Annual meetings of said Corporate Members shall be held at the same place and on the same day that the annual meeting of the Board of Trustees is held.

SEC. 4. Any person paying into the treasury the sum of five hundred dollars (\$500.00), at any one time, shall, upon the unanimous vote of the Board, become a Life Member. Life Members shall be exempt from all dues.

SEC. 5. Patrons shall be chosen by the Board upon recommendation of the Executive Committee from among persons who have rendered eminent service to the Museum. They shall be exempt from all dues, and, by virtue of their election as Patrons, shall also be Corporate Members.

SEC. 6. Honorary Members shall be chosen by the Board from among persons who have rendered eminent service to science, and only upon unanimous nomination of the Executive Committee. They shall be exempt from all dues.

ARTICLE II.

BOARD OF TRUSTEES.

SECTION 1. The Board of Trustees shall consist of fifteen members. The respective members of the Board now in office, and those who shall hereafter be elected, shall hold office during life. Vacancies occurring in the Board shall be filled at a regular meeting of the Board, upon the nomination of the Executive Committee made at a preceding regular meeting, by a majority vote of the members of the Board present.

SEC. 2. Regular meetings of the Board shall be held on the second Monday of each month. Special meetings may be called at any time by the President, and shall be called by the Secretary upon the written request of three Trustees. Five Trustees shall constitute a quorum, except for the election of officers or the adoption of the Annual Budget, when seven Trustees shall be required, but meetings may be adjourned by any less number from day to day, or to a day fixed, previous to the next regular meeting.

SEC. 3. Reasonable written notice, designating the time and place of holding meetings, shall be given by the Secretary.

ARTICLE III.

HONORARY TRUSTEES.

SECTION 1. As a mark of respect, and in appreciation of services performed for the Institution, those Trustees who by reason of inability, on account of change of residence, or for other cause, or from indisposition to serve longer in such capacity, shall resign their place upon the Board, may be elected, by a majority of those present at any regular meeting of the Board, an Honorary Trustee for life. Such Honorary Trustee will receive notice of all meetings of the Board of Trustees, whether regular or special, and will be expected to be present at all such meetings and participate in the deliberations thereof, but an Honorary Trustee shall not have the right to vote.

ARTICLE IV.

OFFICERS.

SECTION 1. The officers shall be a President, a First Vice-President, a Second Vice-President, a Secretary, an Assistant Secretary and a Treasurer. They shall be chosen by ballot by the Board of Trustees, a majority of those present and voting being necessary to elect. The President, the First Vice-President, and the Second Vice-President shall be chosen from among the members of the Board of Trustees. The meeting for the election of officers shall be held on the second Monday of January of each year, and shall be called the Annual Meeting.

SEC. 2. The officers shall hold office for one year, or until their successors are elected and qualified, but any officer may be removed at any regular meeting of the Board of Trustees by a vote of two-thirds of all the members of the Board. Vacancies in any office may be filled by the Board at any meeting.

SEC. 3. The officers shall perform such duties as ordinarily appertain to their respective offices, and such as shall be prescribed by the By-Laws, or designated from time to time by the Board of Trustees.

ARTICLE V.

THE TREASURER.

SECTION 1. The Treasurer shall be custodian of the funds of the Corporation, except as hereinafter provided. He shall make disbursements only upon warrants drawn by the Director and countersigned by the President. In the absence or inability of the Director, warrants may be signed by the Chairman of the Finance Committee, and in the absence or inability of the President, may be countersigned by one of the Vice-Presidents. But no warrants shall be issued, except in conformity with a regularly prepared voucher, giving the name of the payee and stating the occasion for the expenditure, and verified and approved as hereinafter prescribed. It shall be no part of the duties of the Treasurer to see that the warrants have been issued in conformity with such vouchers.

SEC. 2. The securities and muniments of title belonging to the corporation shall be placed in the custody of some Trust Company of Chicago to be designated by the Board of Trustees, which Trust Company shall collect the income and principal of said securities as the same become due, and pay same to the Treasurer, except as hereinafter provided. Said Trust Company shall allow access to and deliver any or all securities or muniments of title to the joint order of the following officers, namely: The President or one of the Vice-Presidents, jointly with the Chairman, or one of the Vice-Chairmen, of the Finance Committee of the Museum.

SEC. 3. The Treasurer shall give bond in such amount, and with such sureties, as shall be approved by the Board of Trustees.

SEC. 4. All vouchers executed for the payment of liabilities incurred in the administration of the Museum, shall be verified by the Auditor, and approved for payment by the Director, and the Chairman of the Administration Committee. All vouchers executed for expenditures for the construction or reconstruction of the Museum building, or buildings, shall be verified by the Auditor and approved for payment by the Chairman of the Building Committee. All vouchers executed in connection with the investments of the Corporation, or in any way having to do with the endowment funds of the Corporation, shall be verified by the Auditor and approved for payment by the Chairman of the Finance Committee.

SEC. 5. The Harris Trust and Savings Bank of Chicago shall be Custodian of "The N. W. Harris Public School Extension of Field Museum" fund. The Bank shall make disbursements only upon warrants drawn by the Director and countersigned by the President. In the absence or inability of the Director, warrants may be signed by the Chairman of the Finance Committee, and in the absence or inability of the President, may be countersigned by one of the Vice-Presidents. But no warrant shall be issued, except in conformity with a regularly prepared voucher, giving the name of the payee and stating the occasion for the expenditure, and verified and approved as hereinafter prescribed. It shall be no part of the duties of the Bank to see that the warrants have been issued in conformity with such vouchers.

ARTICLE VI.

THE DIRECTOR.

SECTION 1. The Board of Trustees shall elect a Director of the Museum, who shall remain in office until his successor shall be elected. He shall have immediate charge and supervision of the Museum, and shall control the operations of the institution, subject to the authority of the Board of Trustees and its Committees. The

Director shall be the official medium of communication between the Board, or its Committees, and the scientific staff and maintenance force.

SEC. 2. There shall be four scientific departments of the Museum — Anthropology, Botany, Geology and Zoölogy, each under the charge of a Curator, subject to the authority of the Director. The Curators shall be appointed by the Board upon the recommendation of the Director, and shall serve during the pleasure of the Board. Subordinate staff officers in the scientific departments shall be appointed and removed by the Director upon the recommendation of the Curators of the respective Departments. The Director shall have authority to employ and remove all other employees of the Museum.

SEC. 3. The Director shall make report to the Board at each regular meeting, recounting the operations of the Museum for the previous month. At the Annual Meeting, the Director shall make an Annual Report, reviewing the work of the Museum for the previous year, which Annual Report shall be published in pamphlet form for the information of the Trustees and Members, and for free distribution in such number as the Board may direct.

ARTICLE VII.

AUDITOR.

SECTION 1. The Board shall appoint an Auditor, who shall hold his office during the pleasure of the Board. He shall keep proper books of account, setting forth the financial condition and transactions of the Corporation, and of the Museum, and report thereon at each regular meeting, and at such other times as may be required by the Board. He shall certify to the correctness of all vouchers for the expenditure of the money of the corporation.

ARTICLE VIII.

COMMITTEES.

SECTION 1. There shall be five Committees as follows: Finance, Building, Auditing, Administration and Executive.

SEC. 2. The Finance and Auditing Committees shall each consist of three members, and the Building and Administration Committees shall each consist of five members. All members of these four Committees shall be elected by ballot by the Board at the Annual Meeting, and shall hold office for one year, and until their successors are elected and qualified. In electing the members of these Committees, the Board shall designate the Chairman and Vice-Chairman by the order in which the members are named in the respective Committee; the first member named shall be Chairman, the second named the Vice-Chairman, and the third named, Second Vice-Chairman, succession to the Chairmanship being in this order in the event of the absence or disability of the Chairman.

SEC. 3. The Executive Committee shall consist of the President of the Board, the Chairman of the Finance Committee, the Chairman of the Building Committee, the Chairman of the Administration Committee, the Chairman of the Auditing Committee, and two other members of the Board to be elected by ballot at the Annual Meeting.

SEC. 4. Four members shall constitute a quorum of the Executive Committee; three members shall constitute a quorum of the Administration Committee, and in all other standing Committees, two members shall constitute a quorum. In the



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Field-Sprague Ornithology Fund.

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event that, owing to the absence or inability of members, a quorum of the regularly elected members cannot be present at any meeting of any Committee, then the Chairman thereof, or his successor, as herein provided, may summon any member of the Board of Trustees to act in place of the absentee.

SEC. 5. The Finance Committee shall have supervision of investing the endowment and other permanent funds of the Corporation, and the care of such real estate as may become its property. It shall have authority to invest, sell, and reinvest, funds, subject to the approval of the Board.

SEC. 6. The Building Committee shall have supervision of the construction, reconstruction, and extension of any and all buildings used for Museum purposes.

SEC. 7. The Executive Committee shall be called together from time to time as the Chairman may consider necessary, or as he may be requested to do by three members of the Committee, to act upon such matters affecting the administration of the Museum as cannot await consideration at the Regular Monthly Meetings of the Board of Trustees. It shall, before the beginning of each fiscal year, prepare and submit to the Board an itemized Budget, setting forth the probable receipts from all sources for the ensuing year, and make recommendations as to the expenditures which should be made for routine maintenance and fixed charges. Upon the adoption of the Budget by the Board, the respective Committees shall be considered as authorized to make the expenditures detailed therein. No increase in the expenditures under any items of the Budget shall be made, except by authority of the Board of Trustees, but the Executive Committee shall have authority, in cases of emergency, to expend a further total sum not exceeding two thousand dollars in any one month.

SEC. 8. The Administration Committee shall have general supervision of the affairs of the Museum. The Committee shall hold one meeting each month with the Director at the Museum within a week preceding each Monthly Meeting of the Board of Trustees.

SEC. 9. The Auditing Committee shall have supervision over all accounting and bookkeeping, and full control of the financial records. It shall cause the same, once each year, or oftener, to be examined by an expert individual or firm, and shall transmit the report of such expert individual or firm to the Board at the next ensuing regular meeting after such examination shall have taken place.

SEC. 10. The Chairman of each Committee shall report the acts and proceedings thereof at the next ensuing regular meeting of the Board.

SEC. 11. The President shall be ex-officio a member of all Committees and Chairman of the Executive Committee. Vacancies occurring in any Committee may be filled by ballot at any regular meeting of the Board.

ARTICLE IX.

NOMINATING COMMITTEE.

SECTION 1. At the November meeting of the Board, each year a Nominating Committee of three shall be chosen by lot. Said Committee shall make nominations for membership of the Finance Committee, the Building Committee, the Administration Committee, and the Auditing Committee, and for two members of the Executive Committee, from among the Trustees, to be submitted at the ensuing December meeting and voted upon at the following Annual Meeting in January.

ARTICLE X.

SECTION 1. Whenever the word "Museum" is employed in the By-Laws of the Corporation, it shall be taken to mean the building in which the Museum as an Institution is located and operated, the material exhibited, the material in study collections, or in storage, furniture, fixtures, cases, tools, records, books, and all appurtenances of the Institution, and the workings, researches, installations, expenditures, field work, laboratories, library publications, lecture courses, and all scientific and maintenance activities.

SEC. 2. These By-Laws may be amended at any regular meeting of the Board of Trustees by a two-thirds vote of all the members present, provided the amendment shall have been proposed at a preceding regular meeting.

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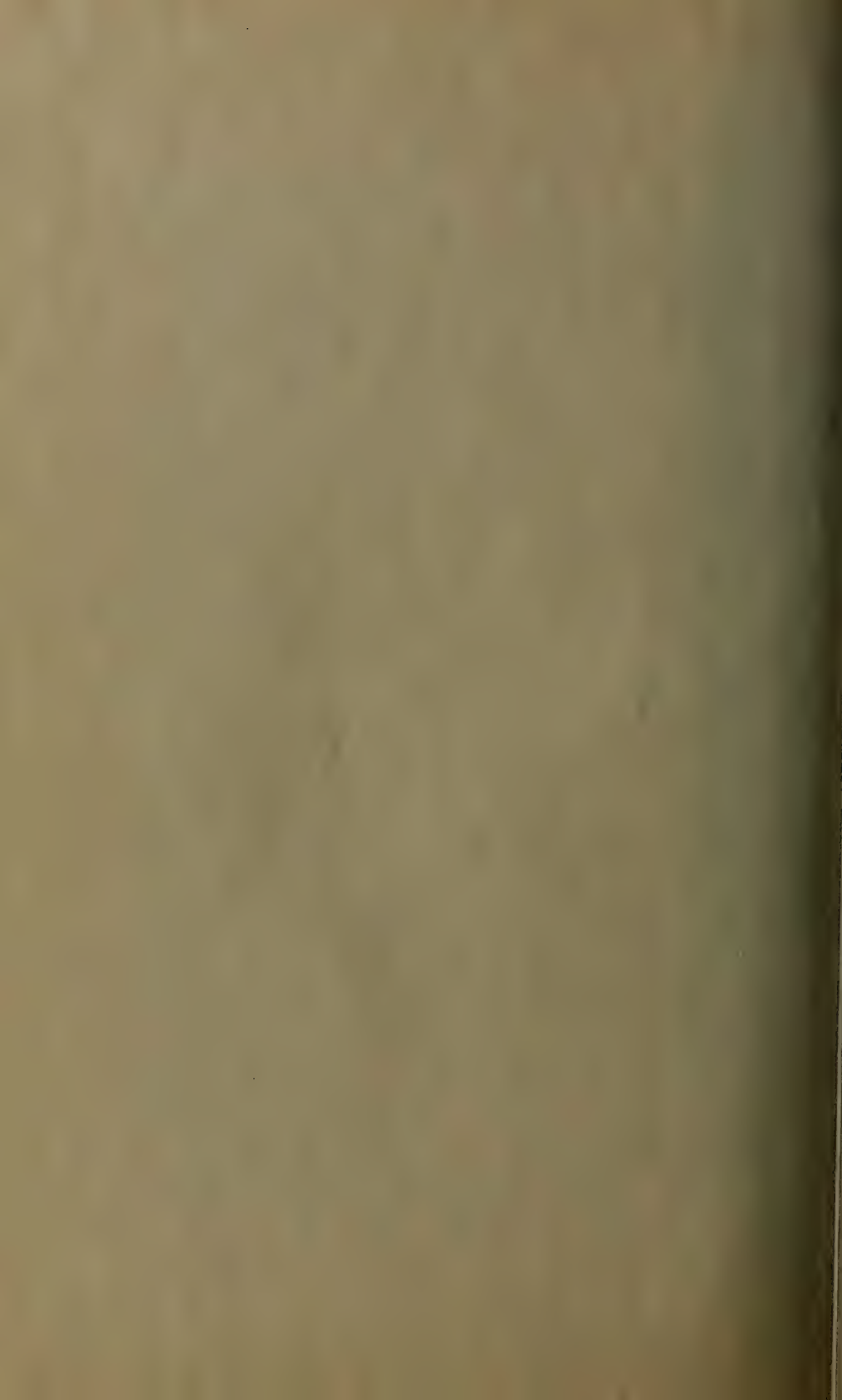
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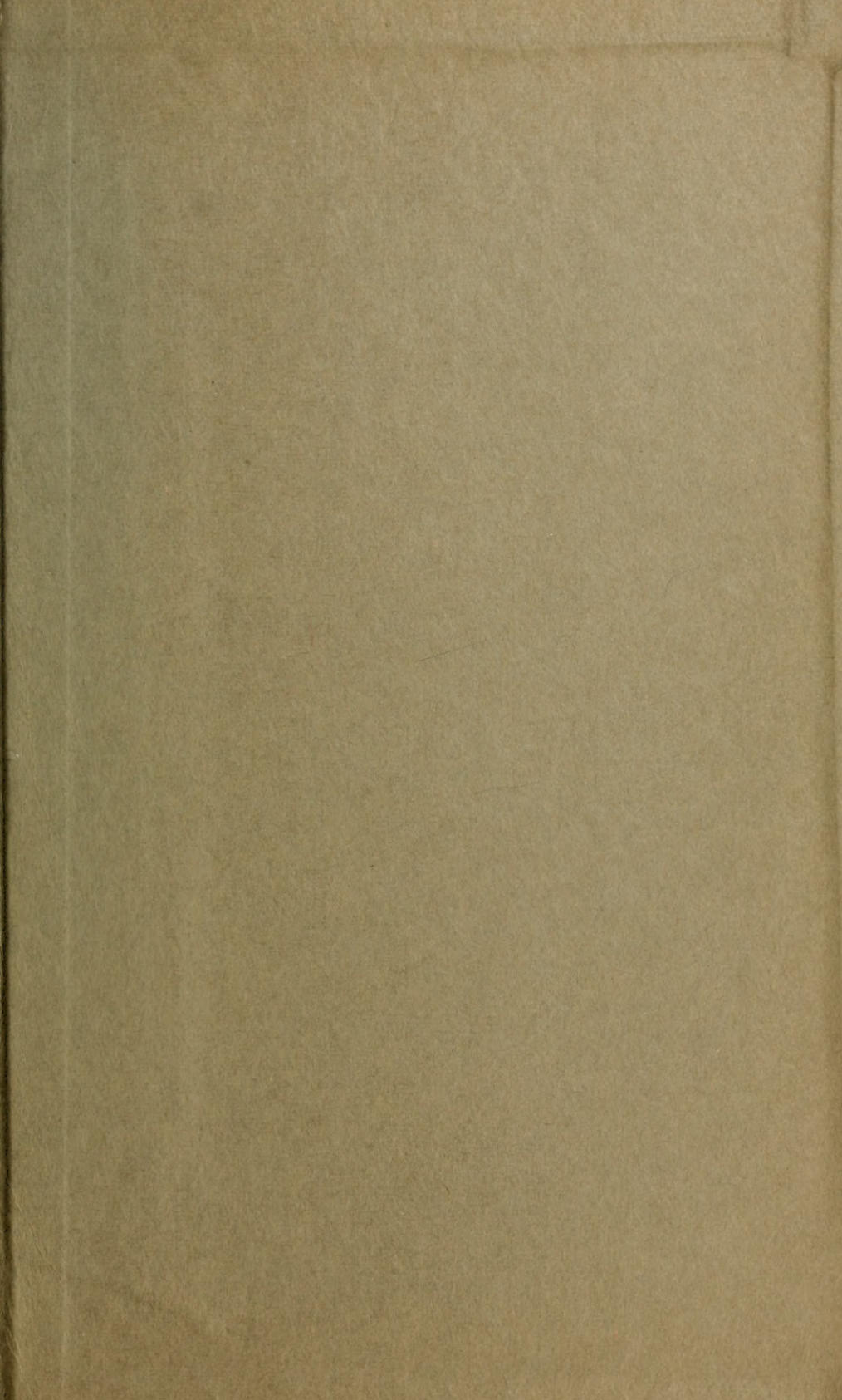
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